The Missouri
Nonpoint Source Management Program
Annual Report
For Federal Fiscal Year 2006

Prepared by the Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program, Watershed Protection Section, Nonpoint Source Unit

Disclaimer: Changes to Web Links in this document are beyond control of the authors. All links were active as of January 1, 2007.

December 2006

Table of Contents

List of Figures

The Missouri Nonpoint Source Management Program Annual Report for Fiscal Year 2006

Prepared by the Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program, Watershed Protection Section, Nonpoint Source Unit

Fulfilling the water quality protection mission of the Missouri Nonpoint Source Management Program (program) can be accomplished only with the cooperation of other resource agencies and the citizens of the state. Nonpoint source pollution occurs when water runs over land or through the ground, picks up natural or human-made pollutants, and deposits them in surface waters or ground water. As administrator of the nonpoint source program, the Missouri Department of Natural Resources (the department) and its partners continue to make significant progress in the protection of water, as well as air and land resources.

This document reports the impacts being made by the department and its partners in the control and abatement of nonpoint source pollution through the 319-grant program and collaborative efforts in the State of Missouri during the Federal Fiscal Year 2006 (October 1, 2005 – September 30, 2006).

I. Missouri's Nonpoint Source Management Program

A. Mission Statement

The mission of Missouri's nonpoint source management program is to preserve and protect the quality of the water resources of the state from nonpoint source impairments.

Goal A: Water Quality Assessment, Monitoring and Prioritization
Continue and enhance statewide water quality assessment processes to evaluate water quality and prioritize watersheds affected by nonpoint source (NPS) pollution.

Goal B: Water Quality Improvement and Protection
Improve water quality by implementing NPS-related projects and other activities.

Goal C: State Nonpoint Source Program Management
Maintain a viable, relevant, and effective Nonpoint Source Management Program with the flexibility necessary to meet changing environmental conditions and regulations.

B. Elements of an Effective State Program

The Missouri Nonpoint Source Management Plan, initially approved and implemented in June 2000, is a five-year plan that contains broad goals intended to identify the general activities necessary to the program's mission statement: *Preserve and protect the quality of the water resources of the state from nonpoint source impairments*. The objectives reflect the five-year life of the plan, with most of them being targeted for completion in five years or less. Specific sections of the plan were updated, according to a prescribed schedule, in 2001-2005. In 2007, the mission, goals, and objectives will be reevaluated to determine if the objectives were achieved, if the objectives were appropriate for reaching the goals, and if the goals are appropriate for achieving the mission. After the review, an update of the plan will be completed. The Nonpoint Source Management Plan may be found at http://www.dnr.mo.gov/env/wpp/nps/mgmtplan/index.html.

C. Missouri's Nine Key Elements

In 1996, a committee of state and U.S. Environmental Protection Agency (EPA) Region 7 representatives developed a list of items considered to be essential components of a state nonpoint source management program. These components were embodied in EPA guidance commonly referred to as *Nine Key Elements of an Effective State Program*. The following elements provide the framework for Missouri's Nonpoint Source Management Plan. Missouri's approach to the nine key elements is outlined beginning on page 19 in the Plan: http://www.dnr.mo.gov/env/wpp/nps/mgmtplan/index.html**.** To determine the progress, specifically the successes, of Missouri's nonpoint source program, the department must continually endeavor to satisfy the intent of these nine key elements.

1. The state program contains explicit short and long-term goals, objectives, and strategies to protect surface and ground water.

2. The state strengthens its working partnerships and linkages to appropriate state, interstate, tribal, regional and local entities (including conservation districts), private sector groups, citizen groups, and federal agencies.

3. The state uses a balanced approach that emphasizes both statewide nonpoint source programs and on-the-ground management of individual watersheds where waters are impaired or threatened.

4. The state program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future nonpoint source activities.

5. The state program identifies waters and their watersheds impaired by NPS pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and

developing watershed implementation or management plans, and then by implementing the plans.

6. The state reviews, upgrades and implements all program components required by section 319(b) of the Clean Water Act, and establishes flexible, targeted and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The state programs include:

   - A mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and

   - A mix of regulatory, non-regulatory, financial and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.

7. The state identifies federal lands and activities, which are not managed consistently with state nonpoint source program objectives. Where appropriate, the state seeks EPA assistance to help resolve issues.

8. The state manages and implements its nonpoint source program efficiently and effectively, including necessary financial management.

9. The state periodically reviews and evaluates its nonpoint source management program using environmental and functional measures of success and revises its nonpoint source assessment and its management program at least every five years.

D. State Program Challenges

This annual report focuses on goals of the Nonpoint Source Management Plan, which outlines the challenges that Missouri faces with nonpoint source pollution. The report will also illustrate progress that has been made toward addressing the following challenges:

1. 303(d) listed waters;
2. Water Quality Standards;
3. Total Maximum Daily Loads (TMDLs); and
4. Watershed Management Planning.

The program challenges listed above will be assessed at the 8-digit hydrologic unit code (HUC) level. Identifying challenges by watershed will help to identify areas of the state where progress is being made toward reducing nonpoint source pollution in watersheds, and will also identify areas where watershed protection and restoration efforts might be lacking.

Program activity measures (PAMs) for nonpoint source pollution, as established by EPA, are identified in the summary charts provided in Section II and in discussion of individual

watersheds in Section III of this report. PAMs include watershed-based plans designed to remediate impaired waters (with or without TMDLs), and which include protective actions for the watersheds. These plans are those that address EPA's nine critical elements of watershed planning, as provided in EPA's 2004 guidance. Plans will be listed in each 8–digit HUC that are being developed, being implemented, and those that have been substantially completed.

II. 319 Nonpoint Source Grant Program Overview

A. Missouri Section 319(h) Nonpoint Source Management Grants

Nonpoint source grant funds are provided from EPA through Section 319(h) of the Clean Water Act. Funds are used to address nonpoint sources of pollution and are administered from EPA through the Missouri Department of Natural Resources to eligible sponsors. Funds can be used to address nonpoint source pollution through information/education, water quality monitoring, demonstrations, and implementation of practices that preserve, conserve, restore, or improve water quality. Eligible sponsors include state and local agencies, educational institutions, and non-profit organizations. Each year a request for proposals (RFP) is distributed describing the grant opportunity. A training session is held to help applicants develop a competitive proposal, provide information about grant requirements, and provide individualized assistance.

B. Priorities and Project Selection Process

Selection for 319 funding emphasizes projects that restore the quality of waters on the state's 303(d) list due to nonpoint sources. However, other high quality nonpoint source projects are encouraged. Highest priority for funding is assigned to projects addressing agricultural, urban, and abandoned coal mine land. Priorities that facilitate the selection process are established in the Nonpoint Source Management Plan (NPSMP).

To confront these priorities, three types of subgrants are offered: major subgrants, minigrants, and watershed planning subgrants.

Major subgrants are awarded through an annual RFP. The RFP is sent to entities on a mailing list, sent electronically to members of the Water Quality Coordinating Committee, advertised on the department's Web site, provided to all Soil and Water Conservation Districts and NRCS, and distributed at various conferences, meetings and events. The availability is announced in departmental newsletters, by our resource partners and via press release. Applicant pre-proposals are submitted and reviewed by staff.

On April 12, 2006, the NPS Unit staff held a subgrant writing training at the Lewis and Clark State Office Building. The training was well attended, with over 70 potential applicants. The main objective of the training is to help first time applicants develop a competitive proposal. During the training staff inform the applicants about the priorities of the 319 funding, as well as additional funding opportunities, such as watershed

management planning grants and minigrants. The training is also an opportunity for the applicants to meet the 319 staff, present and modify the proposals, and develop their budget. The training is open to all applicants, with Soil and Water Conservation Districts, university staff, local government agencies, and not for profit organizations all in attendance.

Final applications for subgrants are evaluated, and the applicants interviewed by an interagency review committee. The proposed projects are ranked by the review committee, submitted to the department and Missouri Clean Water Commission for concurrence and to EPA for approval.

Minigrant applications are reviewed quarterly. These projects are for $5,000 or less and last up to 18 months. Applications are reviewed, prioritized, and rated by an in-house review committee. Selected projects are recommended for funding.

Watershed Management Planning Subgrants are relatively new to Missouri's program. Up to $15,000 may be awarded for projects lasting up to 18-months. The focus of this program is to produce a watershed plan that incorporates EPA's nine critical elements. Applications for this subgrant are accepted quarterly.

In summary, the department administered and managed eighty-four 319 nonpoint source grant projects during federal fiscal year 2006 (FFY06). Among those 84, the department initiated 24 new 319 nonpoint source projects.

In FY2006, 25 major subgrants applications and 16 minigrants were submitted; 28 subgrants and 10 minigrants were awarded. Two Watershed Management Planning Grant applications were submitted and recommended for funding. Applications must have been received within FFY2006 (October 1, 2005 – September 30, 2006).

C. Measuring Benefits of the Section 319(h) Nonpoint Source Management Grant Program

Nonpoint source 319 grants have accomplished significant results in the control and mitigation of nonpoint source pollution in the State of Missouri. By focusing funding on water quality information and education, innovative pollution prevention practices, and remediation of existing water quality problems, 319 grant funding has proven to be a valuable resource to the citizens of Missouri.

A purpose of the 319 Nonpoint Source Management Grant Program is to provide Missouri citizens with choices, tools, and decision-making skills that will benefit water quality through education in the use and protection of natural resources and through implementation of best management practices (BMPs). BMPs are used to control the production or delivery of pollutants from agricultural and urban activities to water resources, and to prevent impacts to the physical and biological integrity of surface and ground water. BMPs can be either structural or managerial.

Structural BMPs include physical structures or materials that are used to protect water quality and slow water velocities to prevent soil erosion. Some examples are animal waste facilities, sediment basins, silt fence, check dams, water diversions, and grade stabilization.

Managerial BMPs address how projects are implemented, primarily the method of carrying out a project. Examples of managerial BMPs include nutrient and pest management, rotational grazing, conservation tillage, street sweeping, use of native plants, and practices that minimize or prevent soil erosion. It can be difficult to quantify the benefits of managerial BMPs because they are often represented by philosophical changes among land managers.

BMPs promote sustainability and may be reproduced to achieve comparable results in other locations. They also include a component to measure reductions in pollution that will be achieved through use of the practice.

One of the broad goals described in the state's NPSMP, Goal B, specifies that the state will "Improve water quality by implementing nonpoint source-related projects and other activities." Water quality benefits are often difficult to quantify and BMP implementation can take a considerable period of time before improvements to water quality can be measured. In Section III, the department has estimated the number of BMPs implemented as a direct result of 319 nonpoint source grants for 2006. The data collection is not all-inclusive, as not all projects are required to report, but it does indicate that the 319 Nonpoint Source Program is having a significant, positive impact on the state's water quality.

The data contained in the following charts was collected from information submitted by 319 subgrant project sponsors and reflects the activities that have been conducted as part of their projects that were active during this reporting period.

1. Summary of FY06 Project Evaluation Measures

Figure 1, on the following page, entitled "Summary of FY06 319 NPS Project Evaluation Measures: HUC 8," represents a summary of results for all 319-related project activities in FY2006. The project sponsors reported these project activities and load reductions on a HUC 8 basis. The second figure, titled "Summary of FY06 319 NPS Project Evaluation Measures: Statewide or Regional," shows projects that had regional (more than one HUC 8) or statewide impacts and were not designated to a watershed level or specific HUC 8. Consequently, these evaluation numbers are not included in the first summary chart and are reported separately.

Figure 1:
Summary of FY06 319 NPS Project Evaluation Measures: HUC 8

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**49**	**288**	**20**	**7**	**976,159**	**1**	**7,025**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated
TMDL	**1**	**2**	**3**	**1,008**

(Total Maximum Daily Loads)

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**122**	**6,506**	**210**	**5,770**	**76**	**1,811**	**2,403**	**17,723**

	Reports Developed*	Reports Distributed*	Newsletters Developed	Newsletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**307**	**700,390**	**53**	**46,294**	**298**	**16,789**	**40**	**2,388**	**10,256**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**2**	**0**	**9**	**23**	**114**	**301**	**932**	**1,972**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**24**	**20**	**1**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**111**	**9**	**32**	**10,226**	**558,049**	**11**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**164**	**3,164**	**130,007,600**	**33,297**	**706,312**	**751,735**	**390**

(Best Management Practices)

* Inlcudes websites published and website hits

Figure 2:

Summary of FY06 319 NPS Project Evaluation Measures

Statewide or Regional

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**21**	**111**	**9**	**4**	**4**	**903,434**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**77**	**2,765**	**175**	**5,002**	**43**	**1,531**	**1,164**	**12,095**	
	Reports Developed*	Reports Distributed*	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**256**	**700,009**	**27**	**16,909**	**225**	**11,397**	**8**	**1,230**	**196**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**3**	**17**	**74**	**241**	**871**	**1,830**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**10**	**1**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**39**	**0**	**0**	**3,774**	**552,000**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**22**	**502**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									
*Data includes w ebpages developed and/or w ebhits									
Projects that encompass multiple 8 digit HUCs w here included in the 2006 statew ide or regional chart									

319 NPS Regional Projects:

- USGS - Stream Flow of Nutrients & Fecal Bacteria in Elk River Basin of Missouri & Arkansas (AOC05380208)
- Demonstration Measuring the Effectiveness of Buffers in Treating Runoff of Underground Outlets (UGO) (G02-NPS-13)
- Local Governments Improving and Protecting Mid-Missouri's Streams (G05-NPS-14)
- Table Rock Long-term Monitoring (G06-NPS-07)
- Daviess County Water Festival (G06-NPS-09)
- Bridgeton/St. Charles Education & Cleanup (G06-MORR-21)
- Finley River Nontraditional Agricultural Implementation Project (G06-NPS-23)
- City of Rogersville NPS Pollution Abatement Project (G06-NPS-24)
- Watkins Creek Citizen Watershed Planning – Phase I (G06-NPS-25)
- Mingo Wildlife Refuge Atmospheric Samples (G06-NPS-26)

319 NPS Statewide Projects:

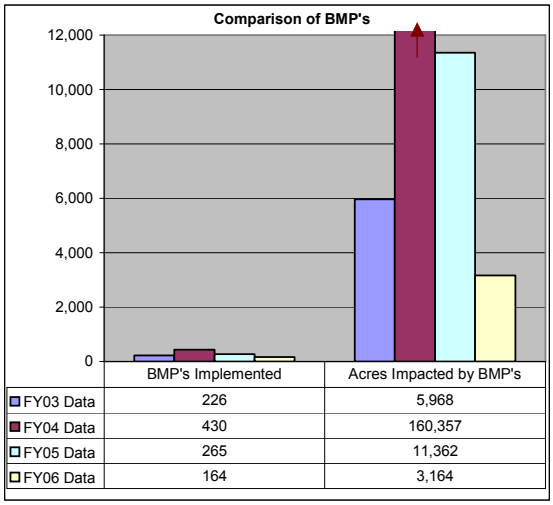
- USGS - Ambient Water Quality Monitoring Network (AOC3000377)
- Solar Water Pumps for Intensive Grazing (MOA-2001)
- Missouri Statewide Lake Assessment (G00-NPS-19)
- Lakes of Missouri Volunteer Program (G00-NPS-20 & G06-NPS-08)
- Stewardship Implementation Project (SIP) (G02-NPS-15)
- Developing Interactive Watershed Information Websites for Science Teachers in Grades 4-8 (G03-NPS-11)
- Team Up! Protecting Missouri's Water Resources from Irrigation-related Nitrogen Contamination (G03-NPS-18)
- Computer Assisted Nutrient Management Planning (G04-NPS-04)
- Stream Educational Workshops and Product Development (G04-NPS-19)
- Reservoir Daily Dynamics (G04-NPS-25)
- Urban Erosion Education Program (G05-NPS-01)
- Training & Assistance to Pesticide Users & Suppliers (G05-NPS-02)
- Project WET (G05-NPS-04)
- Stormwater Education (G05-NPS-11)
- Poultry Litter Exchange (G05-NPS-12)
- TMDL Watershed Support (G05-NPS-17)
- MO-Ag Watershed Project (G06-NPS-02)
- Achieving TMDLs Through Locally Developed & Implemented Watershed Management (G06-NPS-10)
- Development of a Watershed Comparison & Educational Tool (G06-NPS-11)
- Water Quality Education for the Professionally Trained Logger (G06-NPS-13)
- Statewide Lake Assessment Program (G06-NPS-20)

319 NPS Multiple HUC Projects:

- Ed/Info to Reduce Water Pollution by Livestock Producers in Southwest Missouri (G02-NPS-11)
- Brush Creek Mid-Shed (G03-NPS-06)
- Our Watersheds, Our Homes: Building on the Watershed Atlas Concept (G04-NPS-17)
- Community On-Site Wastewater & Stormwater Project (G04-NPS-18)
- Marmaton, Marais des Cygnes, Little Osage Watershed Management and Protection Plan (G05-NPS-05)
- Polk County Regional Grazing School (G06-NPS-06)
- Chillicothe Middle School WQ Project (G05-NPS-08)
- Upper White River Watershed Integrated Economic and Environmental (G05-NPS-09)
- Landowner Outreach Project (G05-NPS-16)
- Habitat for Community (G05-NPS-22)
- Poultry Litter Fertility and Water Quality Demo (G05-NPS-23)
- "It's the Water" Workshop (G05-NPS-28)
- Big River Stewardship and Education Initiative (G06-NPS-05)
- Clean Water Education & Resources Project (G06-NPS-22)
- Elk River Watershed Poultry Manure Composting (MOA-2002)

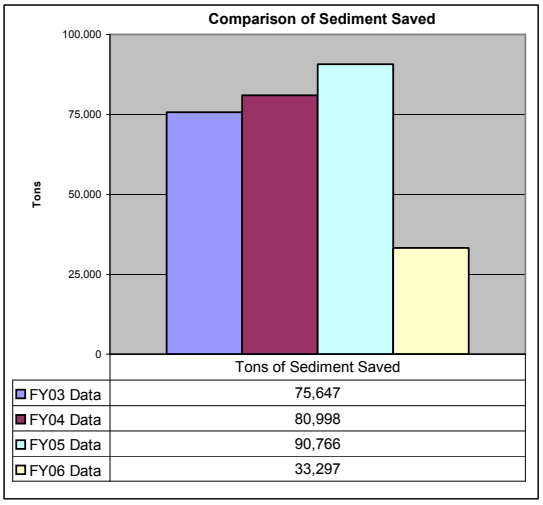
Figures 3 through 6, below display graphically selected information from the preceding two tables and compare 319 BMP implementation and load reduction for years 2003 through 2006.

Figure 3.



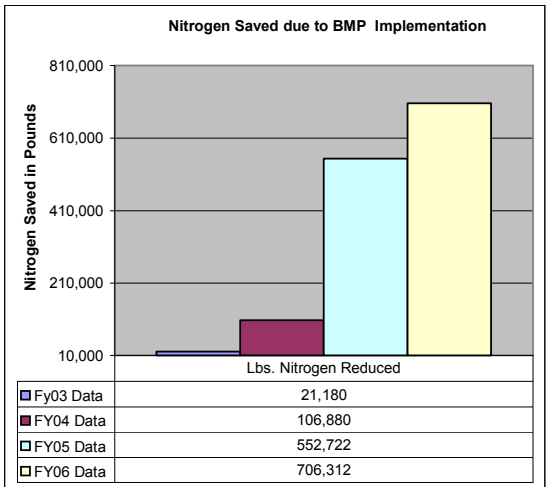
	BMP's Implemented	Acres Impacted by BMP's
FY03 Data	226	5,968
FY04 Data	430	160,357
FY05 Data	265	11,362
FY06 Data	164	3,164

Figure 4.



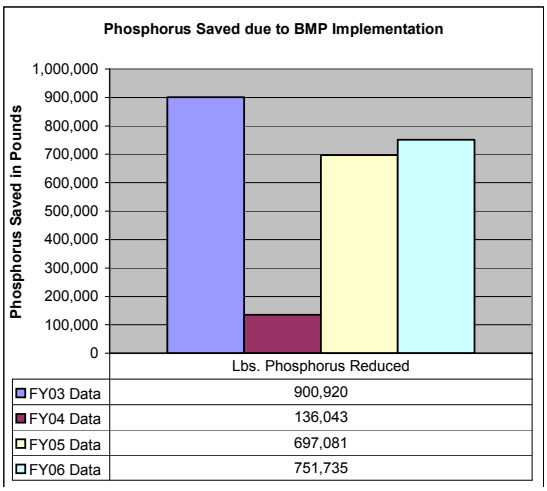
	Tons of Sediment Saved
FY03 Data	75,647
FY04 Data	80,998
FY05 Data	90,766
FY06 Data	33,297

Figure 5.



	Lbs. Nitrogen Reduced
Fy03 Data	21,180
FY04 Data	106,880
FY05 Data	552,722
FY06 Data	706,312

Figure 6.



	Lbs. Phosphorus Reduced
FY03 Data	900,920
FY04 Data	136,043
FY05 Data	697,081
FY06 Data	751,735

2. Summary of FY06 319 Grant Program Dollars Spent

The dollars spent in FY06 on local, regional and state 319 projects were $2,560,675.47. This funding was passed through to sponsors for water quality education, demonstration, implementation, modeling, and monitoring.

3. Summary of FY06 319 Results Through Modeling

STEPL

EPA supports several computer models that simulate and measure load reductions. One such model is called the Spreadsheet Tool for Estimating Pollutant Load (STEPL). STEPL employs simple algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various BMPs. STEPL provides a user-friendly Visual Basic (VB) interface to create a customized spreadsheet-based model in Microsoft Excel. It computes watershed surface runoff; nutrient loads, including nitrogen, phosphorus, and 5-day biological oxygen demand (BOD5); and sediment delivery based on various land uses and management practices.

For each watershed, the annual nutrient loading is calculated based on the runoff volume and the pollutant concentrations in the runoff water as influenced by factors such as the land use distribution and management practices. The annual sediment load (sheet and rill erosion only) is calculated based on the Universal Soil Loss Equation (USLE) and the sediment delivery ratio. The sediment and pollutant load reductions that result from the implementation of BMPs are computed using the known BMP efficiencies.

The STEPL model is provided to project sponsors to help quantify the effectiveness of their projects. Currently, load reduction data and other evaluation information reported to the department by 319 subgrant recipients is provided through quarterly and annual project reporting. Although STEPL is recommended, it is not required. Subgrant recipients use several approved methods for quantifying load reductions.

RUSLE2

Many project personnel calculate sediment loss using the Revised Universal Soil Loss Equation version 2 (RUSLE2). For more information on RUSLE2, review the following Web sites: http://nmplanner.missouri.edu/ and http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm.

Other Calculations and/or Models

In the majority of cases, the Natural Resources Conservation Service (NRCS) has worked with the project sponsors to obtain this information. Reduction in nutrient loading for animal waste projects was calculated using equations based upon university publications and from soil and litter analysis.

Department staff use Microsoft Excel to compile data received from the project sponsors. This software provides analyses capabilities and is the source of the data summaries and tabulated totals used to create the graphs and tables for this document.

For more information about STEPL and other models approved by EPA for measuring pollutant load reductions, review the following Web site: http://it.tetratech-ffx.com/stepl/.

4. Activities of the 319 Program Staff

Some staff funded through the 319 program are responsible for promoting, implementing and reporting progress for funded grants. Staff performs other activities not directly associated with a grant project such as providing input and direction on a wide variety of water quality related issues that are priorities for the department. Staff served on many workgroups and committees to help address issues which include, but are not limited to, wetlands, forest management, lake monitoring, abandoned mine lands, animal waste handling, urban and stormwater runoff, TMDLs, mercury contamination, abandoned landfills, pesticide and nutrient planning, general agriculture, sand and gravel mining, watershed planning, source water protection, wellhead protection, SRF nonpoint source/ on-site systems, and Missouri Stream Teams.

Staff participated in conferences and meetings, gave approximately eight presentations, and set up about six displays at a variety of venues throughout the state to provide awareness about grant opportunities and disseminate information to those interested in addressing nonpoint source problems. The number of presentations does not include presentations made during the subgrant application training session.

III. 319 Project Accomplishments

The program focus is on watershed based, nonpoint source projects. Therefore, staff strives to track nonpoint source accomplishments by watershed. A watershed is an area of land that catches rainfall and snowmelt, which then drains into low-lying bodies of water. Watersheds come in all shapes and sizes, from a few acres to millions of square miles and are sometimes difficult to delineate. Consequently, HUCs were created to logically convey the relationship of stream systems, watersheds, and larger river basins. Generally, HUC describes an area of land that most effectively and consistently describes a drainage area for surface runoff. A unique HUC number, consisting of 2 to 14 digits, identifies every hydrologic unit (a watershed or subwatershed). The larger the HUC number the smaller the watershed. There are sixty-six 8-digit hydrologic unit codes in Missouri, which includes several that are shared with neighboring states.

A. Successful 319 Nonpoint Source Grant Projects

There were many successful 319 nonpoint source grant projects active in FY06. The following three projects are exceptional examples representing three major types of nonpoint source project activities: Information and Education, Implementation, and Water Quality Monitoring/Assessment.

1. Successful Information and Education Project

Our Watersheds, Our Homes: Building on the Watershed Atlas Concept
Bryant Watershed Project, Inc.
G04-NPS-17

Our Watersheds, Our Homes builds on the successes of the original Bryant Watershed Atlas Project, by incorporating the community, particularly middle school students, into the process of expanding the Atlas to cover North Fork, Eleven Point and Upper Spring River Watersheds. With many pages of background information already in the Atlas, the project concentrates on a participatory creative process that builds watershed awareness through direct experience.

In 2004, the Department of Natural Resources awarded Bryant Watershed Project, Inc. a subgrant for the Our Watersheds, Our Homes 319 Project in the amount of $155,918 with a minimum match of $107,209. This project is scheduled to end June 14, 2007.

A volunteer group called Team Watershed has been educated about water quality, stream habitats and dynamics, and NPS pollution. Team Watershed works with local schools on classroom projects and field trips. Volunteer driven, multidisciplinary education programs are offered to teachers in 20 school districts serving more than 15,000 students. An Educator Advisory Group assists in design of the educational programs, the selection and adaptation of curriculum materials and the evaluation of the programs.

In April 2006, Our Watersheds, Our Homes Web site was featured as part of a Captain Planet online contest (http://www.captainplanetfdn.org/). The contest encouraged children to learn about the nonpoint source pollution that may be affecting their watershed by visiting http://www.watersheds.org/earth/nps.htm.

Thorough and ongoing evaluations of both the process and products are utilized to fine-tune the programs. Community outreach raises awareness of watershed and NPS issues particularly relevant in these watersheds, while recognizing students for their work. The entire process is documented to provide other watershed groups with a guide to follow for their own education efforts. Ultimately, the Atlas will have explored a sustainable model for locally produced watershed education using technology as a tool.

Methods Employed
- Record “hits” to the new photo tours, distinguishing whenever possible those from the target area and local schools.
- Survey teachers to assess appropriateness of format and use of photographs.
- Pre- and post-tests of student participants’ understanding of watershed/NPS issues.
- Number of programs completed and number of students participating in programs.
- Number of volunteers successfully completing training courses.
- Number of team watershed presentations completed.
- Evaluation of volunteer presentations by mentors and teachers.

Products Anticipated

Atlas Additions:
1. Map based photo tours of each watershed, with major tributaries using approximately 300 photos.
2. Digital archive of approximately 500 photographs taken in the project area for student, volunteer, and teacher use. Topics may include but are not limited to animal and plant life; geographic and geological features; examples of NPS: sedimentation, bank erosion, cattle in steams, poor management practices; examples of construction BMPs, residential waste treatment, logging, and agriculture. And finally, sets of close-up photographs at specific sites (such as parks or school yards) for observation and mapping activities.
3. Three researched and illustrated stories on BMPs addressing the target NPS pollutants and categories for the project.
4. "How-to Atlas" guide section published on the Atlas and available in PDF format documenting the project process, outcomes, and learning as a resource for other watershed and conservation groups.

Volunteer Training and Support:
1. 30 volunteers enrolled for the educational programs.
2. Three days (18 hours total) of orientation on watershed awareness, karst topography, and local NPS issues, as well as on place-based education and the Atlas project.
3. Mentoring of volunteers by the Advisory Group as they prepare presentations.
4. Annual evaluation and recognition event.

Stream Days - Fifteen full days at non-school locations for 60 middle school children each day: 1500 students and 64 volunteer days total.

Team Watershed - 132 classroom/outdoor presentations: 4080 student contacts.

Art Stream - Eight projects engaging 960 students during the course of the school year.

Community Outreach:
1. Public "ground breaking" ceremonies to mark the beginning of the "Our Watersheds, Our Homes" Project.
2. Community celebrations for each Art Stream Project, including exhibits of the student's work.
3. Six multi-media presentations by students to public groups on watershed and NPS topics.
4. Educator Advisory Group meetings six times a year.

Cooperators include the local 4-H, MoWIN, MSU, and local schools.

2. Successful Implementation Project

James River Watershed 319 Project
James River Basin Partnership
G02-NPS-01

Flowing through the heart of the Ozarks, the James River is approximately 75 miles long. The James River watershed covers parts of seven counties and 931,000 acres. The James River is also a major tributary to Table Rock Lake, an economically important recreational lake. A major part of the James River is considered impaired due to excess nutrients.

In 2001, the James River Basin Partnership (JRBP) was awarded the James River Watershed 319 Project subgrant in the amount of $626,350 and with a minimum match of $46,100 provided by JRBP with the remaining match of $371,467 provided through state cost share programs from partnering Soil and Water Conservation Districts. The primary objectives of this project were to 1) address nutrient problems in the watershed by installing best management practices (BMPs), and 2) implement an information/education campaign throughout the watershed.

Clean Water Kids. JRBP and partners hosted multiple field trips, educational presentations, and hands-on activities related to water quality issues in the James River Basin. Over 5,500 students participated in these programs. Also, countywide watershed festivals were held in Taney and Christian counties for all 5th grade students.

River Rescue. The River Rescue began as a clean-up effort with the Ozark Mountain Paddlers. Now the event has evolved into a four-phase event. The kick-off is a three-day Bass Pro Garage Sale for Conservation with part of the proceeds going to fund JRBP water quality programs along with educational displays throughout the sale. Next, a watershed festival is held along with a clean-up float trip. Over 4 tons of trash and 350 tires have been removed from the James River since 2002. Finally, a benefit concert is held on the banks of the Finley River.

Project Participant Meetings. JRBP hosted over 40 membership, project participant, and JRBP board meetings throughout the project. These meetings helped to increase stakeholder involvement and education.

Promotion of Smart Growth. The City of Ozark and JRBP hosted a conference "Innovative Conservation Design for Stormwater Management in the Ozarks" in spring 2005. Dr. Gerry Wilhelm and James Patchett of Conservation Design Forum from Chicago provided examples of how alternative conservation design techniques can be successfully implemented in all types of development. Over 80 professionals attended from local, state and federal agencies, private engineering and architect firms, and non-for-profit environmental groups. Eighty-one percent of participants felt the techniques were feasible to implement and 94% were interested in similar workshops in the future.

Web sites and Toll-Free Hotline. The JRBP (www.jamesriverbasin.com) and River Rescue (www.riverrescue.net). Web sites were created and maintained to dispense water quality and 319 project information. Over 10,000 visitors have viewed both Web sites. JRBP's toll-free water quality hotline (1.888.924.WATER) provides an easy way for individuals to learn about events or programs. Citizens call the hotline an average of over 50 times per month.

Public Outreach and Education. Over 35 groups and over 8,000 individuals have attended educational presentations, workshops, demos, and field days related to water quality in the region.

Television Public Service Announcements (PSAs). Throughout this project several television PSAs were created to promote the River Rescue, septic tank maintenance, fertilizing responsibly, and stormwater runoff reductions. These announcements have reached over 300,000 individuals in the region. Over 50% of participants in programs like Get Pumped and Get Tested learned about the programs through these PSAs.

Current Newsletter and Informational Brochures. The *Current* newsletter provides water quality information, program updates, and upcoming events to over 1,500 readers quarterly. Over 50,000 informational brochures and materials were created and distributed on topics including sinkhole protection, septic tank maintenance, and responsible urban lawn care practices.

Get Pumped. Participants receive a site visit to evaluate the condition of their septic system and educate them. Over 25% of project participants did not regularly maintain their septic systems. Ninety-nine percent of participants stated they would now maintain their system on a regular basis. Over 300 individuals participated removing an estimated 300,000 gallons of septic effluent.

Get Tested. Participants received a site visit to evaluate the condition of lawn, a free soil test, and education about fertilizing responsibly. Seventy-three percent of participants did not test their soil before applying fertilizer to their lawns. Soil test results from all lawns tested indicated that 40.5% needed no additional phosphorus and another 22.4% required only a small maintenance application. Ninety-five percent of participants found the nutrient management plan easy to understand and follow with 86% indicating they had changed their lawn care practices.

Riparian Corridors. Over 22 miles of riparian corridor were enhanced, covering 1,501 acres of the watershed.

Well Closings. Many abandoned wells and cisterns were hand-dug and large enough to threaten personal safety and water quality. Using appropriate materials to fill and seal these wells, 20 were decommissioned.

Woodland Protection. 664 acres of existing woodland were fenced to exclude livestock from causing grazing damage and soil erosion due to reduced ground cover.

Agricultural Nutrient Management Plans. Plans were prepared for 24 farmers in the watershed.

Pasture Improvement and Planned Grazing. These conservation plans were a combination of vegetative and mechanical practices, along with farmer education that was unique to each farm. 5,633 acres of planned grazing systems and 10,422 of pasture improvement were completed.

Figure 7. BMPs Completed in James River Watershed: Aug. 1, 2001 to July 30, 2006.

Best Management Practices	Amount Completed	Unit	% of Project Goal
Urban Nutrient Management	313	No.	104%
Septic Tank Maintenance	125	No.	250%
Riparian Corridors	115,572	Linear ft.	115.6%
Well Decommission	20	No.	111%
Sinkhole Protection	3	No.	100%
Woodland Protection	664	Acres	133%
Agricultural Nutrient Management Plans	24	No.	160%
Planned Grazing Systems	5,633	Acres	102%
Pasture Improvement	10,422	Acres	105%

3. Successful Water Quality Monitoring/Assessment Project

Statewide Lake Assessment Project
University of Missouri – Columbia
G00-NPS-19 & G06-NPS-16

Most Missouri lakes are shallow artificial reservoirs built in the past 30 to 60 years, in valleys previously altered by agriculture (row crop and managed pasture), forest harvest and human settlement. The physical features of these lakes combined with the land use within their watersheds favor high concentrations of nutrients and phytoplankton, low water clarity and long periods of anoxia in deeper waters. Historic information shows that about 70% of Missouri reservoirs are eutrophic or hypereutrophic.

Previous data gathered from the statewide lake assessment shows that in many reservoirs' water clarity is further reduced by high concentrations of suspended sediments delivered from nonpoint source erosion in the watershed and from disturbances of bottom sediments. Given these factors, in the typical Missouri lake, the water is often not clear enough to meet national guidelines for "safe" swimming, and high levels of algae and sediment increase the difficulty of potable water treatment. Plankton communities in these productive lakes are dominated by blue-green algae (Cyanobacteria), a group associated with water quality problems such as taste and odors, allergic reactions in

swimmers, and toxin production. Continued monitoring of lake water resources for nutrients and suspended sediment is a key component of environmentally sound management.

The Statewide Lake Assessment Project collected water samples for six summers. Lake water samples and water quality data was collected from approximately 60 lakes throughout the state. Lakes were selected each spring. These lakes represent the full range of size, use, and geographical location in Missouri. Within a given season, 40 reservoirs are sampled that are considered of primary importance. This list includes the largest lakes, representative lakes from each physiographic region, and those used extensively for recreation (e.g., Little Dixie). Each lake is assessed annually, providing the state with a continuous monitoring of key resources.

Each spring an additional 20-25 lakes were selected from a secondary lake list. Secondary lakes were selected on the basis of their present water quality, sampling history (an effort is underway to gather at least 6 seasons of data from each lake in the study), emerging problems, and concerns expressed by state resource employees. This approach to annual sampling was developed with input from a statistician and provides flexibility in the annual sampling protocol, while being a cost-effective way to assess water quality in a large number of lakes and provide long-term data.

Assessment occurs from mid-May through mid-August, with each sampling circuit lasting three weeks (period required to collect one sample from each lake, about 20 per week). This schedule will be repeated four times so that water quality during the summer season is documented. Trained university students who work in the Department of Fisheries and Wildlife Sciences completes fieldwork. The field crew collects samples (composited from the lake surface as is standard practice in cross-system regional lake studies) and makes basic water quality measurements such as Secchi transparency, temperature and oxygen profiles. A laboratory crew processes all samples at the university's limnology laboratory using standard research-level procedures. Parameters measured include total nitrogen, total phosphorus, algal chlorophyll, total suspended solids (measure of sediment), turbidity, conductivity and dissolved organic carbon.

Objectives

1) Determine the current water quality of Missouri's lakes.
2) Quantify the factors regulating water quality in Missouri's lakes.
3) Monitor for long-term changes in water quality in individual lakes.

Measures of Success

Success of our first objective is measured by the collection of water samples from 60 lakes monitored four times during the summer sampling season (mid-May to mid-August). Success is also gauged by the timely processing, analyses, compilation and dissemination of these data. Nutrient, algal chlorophyll, suspended sediment, and water clarity data was added to the historic Missouri lake data set. The expanded data improves our ability to quantify functional processes of Missouri's lakes and recommend management practices.

Success of the second objective is evaluated by the continued refinement of our understanding of the ecology of Missouri lakes which has resulted in a peer reviewed paper quantifying lake processes that directly benefits management approaches.

At the end of each sampling season, data from individual lakes is combined with historical data to assess long-term trends. Any identified trends are reported to department staff and the appropriate managing entity (MDC, Corp of Engineers, etc.) At the end of this project the final report will detail trends in water quality showing lakes that are unchanged, improving, or degrading over time.

Other methods of evaluating success include the annual meeting with department staff to review data quality.

B. NPS Information for HUC 8 Watersheds

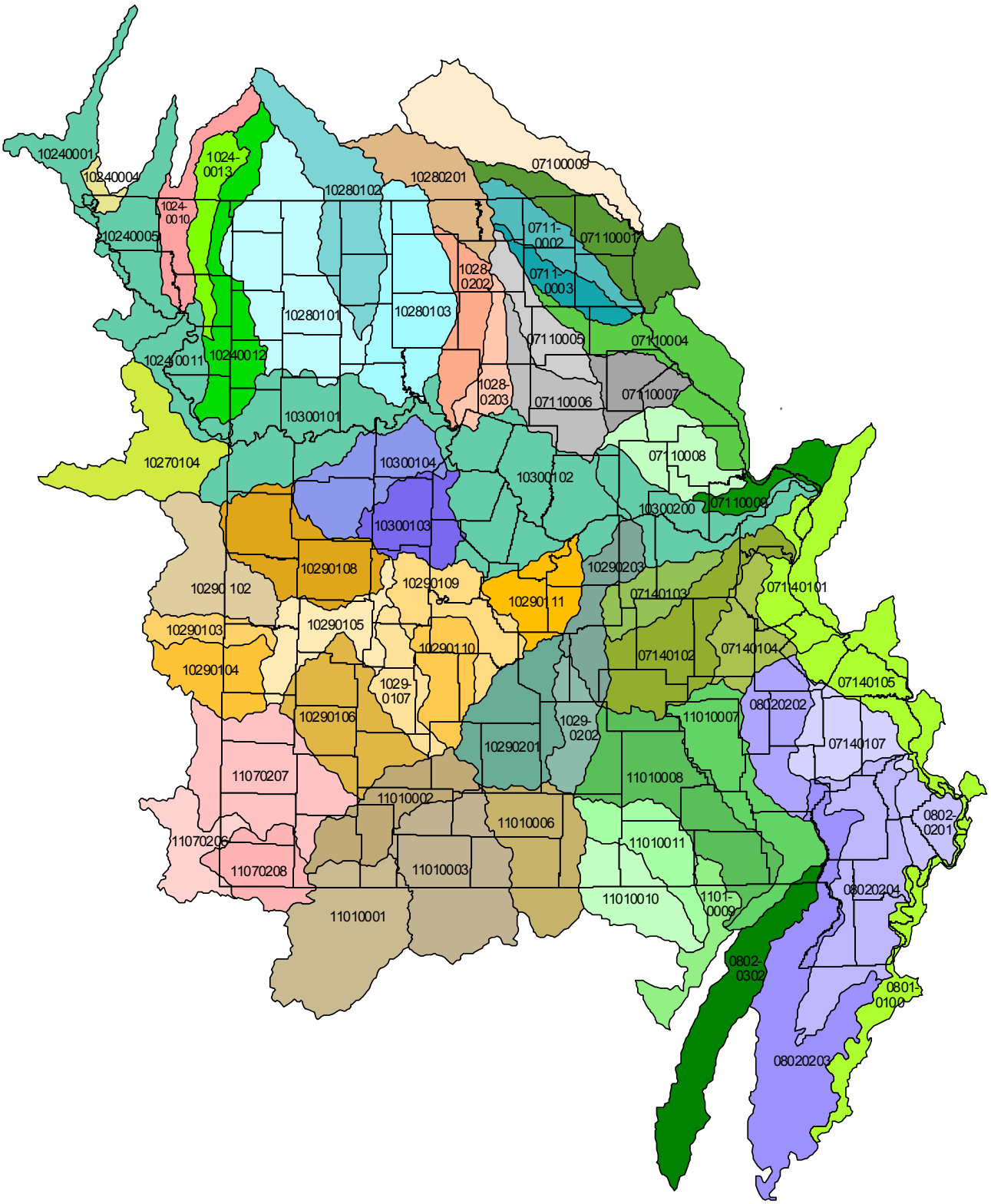
For this report, and for practical purposes, information has been aggregated to the HUC 8 scale. Though the HUC 8 scale is practical for reporting purposes, the units are rather large and many watershed based programs and projects tend to focus on smaller, more manageable sub-watersheds. The active 319 projects in FY06 are presented on a HUC 8 watershed scale so the implementation and monitoring results, educational efforts, load reduction, TMDL, source water protection, and program activity measures may be viewed as they relate to the watershed. The basins will be listed based upon HUC 8, USGS basin names, and Missouri basin names. The watershed information sheets will follow the order in Figure 8.

Figure 8: Missouri Watersheds based on their USGS basin name, HUC 8, and Missouri basin name.

HUC 8	USGS Basin Name	Missouri Basin Name
07100009	Lower Des Moines	Des Moines Basin
07110001	Bear-Wyaconda	Wyaconda - Fox Rivers
07110002	North Fabius	North Fabius River Basin
07110003	South Fabius	South Fabius River Basin
07110004	The Sny	North River - Bobs Creek
07110005	North Fork Salt	North Salt River Basin
07110006	South Fork Salt	Middle-South Forks of the Salt River
07110007	Salt	Lower Salt River Basin
07110008	Cuivre	Cuivre River Basin
07110009	Peruque-Piasa	Peruque-Dardenne Creeks
07140101	Cahokia-Joachim	Mississippi River Tribs - St. L-Ste. Gen
07140102	Meramec	Meramec River Basin
07140103	Bourbeuse	Bourbeuse River Basin
07140104	Big	Big River Basin
07140105	Upper Mississippi-Cape Girardeau	Mississippi River Tribs - Ste. Gen-Cape Gir.
07140107	Whitewater	Castor-Whitewater Rivers Basin
08010100	Lower Mississippi-Memphis	Mississippi River Mainstem Below Ohio River
08020201	New Madrid-St. Johns	St. Johns Bayou
08020202	Upper St. Francis	Upper St. Francis Basin
08020203	Lower St. Francis	Lower St. Francis Basin

HUC 8	USGS Basin Name	Missouri Basin Name
08020204	Little River Ditches	Little River Ditches
08020302	Cache	Cache River Basin
10240001	Keg-Weeping Water	Missouri River Bottom
10240004	Nishnabotna	Nishnabotna River Basin
10240005	Tarkio-Wolf	Tarkio-Squaw Tributaries Basin
10240010	Nodaway	Nodaway River Basin
10240011	Independence-Sugar	Missouri River Mainstem
10240012	Platte	Platte River Basin
10240013	One Hundred and Two	102 River Basin
10270104	Lower Kansas	Kansas River Basin
10280101	Upper Grand	Upper Grand River Basin
10280102	Thompson	Thompson River Basin
10280103	Lower Grand	Middle Grand River Basin
10280201	Upper Chariton	Upper Chariton River Basin
10280202	Lower Chariton	Lower Chariton River Basin
10280203	Little Chariton	Little Chariton River Basin
10290102	Lower Marais Des Cygnes	Maries des Cygnes River Basin
10290103	Little Osage	Little Osage River Basin
10290104	Marmaton	Marmaton River Basin
10290105	Harry S. Truman Reservoir	Upper Osage River Basin
10290106	Sac	Sac River Basin
10290107	Pomme De Terre	Pomme de Terre River Basin
10290108	South Grand	South Grand River Basin
10290109	Lake of the Ozarks	Lake of Ozarks Basin
10290110	Niangua	Niangua River Basin
10290111	Lower Osage	Lower Osage River Basin
10290201	Upper Gasconade	Upper Gasconade River Basin
10290202	Big Piney	Big Piney River Basin
10290203	Lower Gasconade	Lower Gasconade River Basin
10300101	Lower Missouri-Crooked	Missouri River Mainstem- KC to Glasgow
10300102	Lower Missouri-Moreau	Missouri River Mainstem- Glasqow to Hermann
10300103	Lamine	Lamine River Basin
10300104	Blackwater	Blackwater River Basin
10300200	Lower Missouri	Missouri River Mainstem- Hermann to St.L
11010001	Beaver Reservoir	Table Rock Lake Basin
11010002	James	James River Basin
11010003	Bull Shoals Lake	Bull Shoals Lake Basin
11010006	North Fork White	North Fork White River Basin
11010007	Upper Black	Black River Basin
11010008	Current	Current River Basin
11010009	Lower Black	Fourche Creek Basin
11010010	Spring	Spring River Basin (Howell/Oreg counties)
11010011	Eleven Point	Eleven Point River Basin
11070206	Lake O' the Cherokees	Cherokees Lake Basin
11070207	Spring	Spring River Basin
11070208	Elk	Elk River Basin

Figure 9: Missouri Hydrologic Unit Delineations by 8-digit Hydrologic Unit Code.



Lower Des Moines Basin
(HUC 07100009)
Missouri Basin Name – Des Moines Basin

The Lower Des Moines River basin lies in the northeastern corner of Missouri in Clark County. The Des Moines is the largest interior river in Iowa and drains much of the central portion of that state. The lower 29 miles of the Des Moines forms the state line between Missouri and Iowa and there is a strip of land three to four miles in width along the river that comprises its watershed in Missouri. The Des Moines River flows in a southeasterly direction to its confluence with the Mississippi River. A mixture of hills and open plains characterizes the Des Moines River basin. Most water movement in the basin is through the surface stream network.

The most serious nonpoint source pollution problem is degradation of aquatic habitat and agricultural runoff. The basin is mainly rural.

Watershed Efforts and Ongoing Activities

Watershed Planning
- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** – none

Water Quality Monitoring
- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network-*** none
- ***Stream Teams -*** No water bodies were monitored between October 1, 2005 and September 30, 2006.

Active Nonpoint Source Projects
- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** – none

Figure 10: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07100009.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	7,415
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	8
Waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Bear-Wyaconda Basin
(HUC 07110001)
Missouri Basin Name – Wyaconda-Fox Rivers Basin

Bear-Wyaconda River basin, HUC 0711000, lies in the northeastern corner of Missouri and occupies portions of Scotland, Clark, Lewis, and Marion counties. The uppermost portions of the Wyaconda basin and the upper half of the Fox River basin lie in southeastern Iowa. The Fox and Wyaconda flow in a southeasterly direction to their confluence with the Mississippi River. The largest tributaries within Missouri are the Little Fox and Little Wyaconda rivers. The largest reservoir in the basin is Agate Lake with a surface area of 167 acres. Wyaconda Lake, which serves the town of Wyaconda, is the only public drinking water reservoir in the basin.

The basin is characterized by a mixture of hills and open plains and is mostly rural. The main land use in the basin is for crops and pastureland. Most water movement in the basin is through the surface stream network. The most serious nonpoint source pollution problem is degradation of aquatic habitat. Over 50% of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 77 miles (19%) of streams in the basin. Other nonpoint source pollution results from sediment, nutrients and pesticides from crop production.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) for 07110001030 and 07110001040
    Status - being implemented through G03-NPS-07
- ***TMDL*** -

  #0037 Fox River
  Impaired by naturally occurring manganese.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0037-fox-r-info.pdf

  #0001 Mississippi River
  Impaired by chlordane and PCBs. TMDL approved by EPA November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf

  #0050 South Wyaconda River
  Impaired by sediment. TMDL for sediment approved by EPA on November 22, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/s_wyaconda_river_tmdl_112206.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
  Impaired by naturally occurring manganese.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0050-s-wyaconda-mn-info.pdf

  #0046 Wyaconda River
  Impaired by naturally occurring manganese.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0046-wyaconda-r-info.pdf
- ***Watershed Groups Formed*** -
  Fox River Ecosystem Development Board of Supervisors
  FRED Board (Fox River)

- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – Wayland (Clark County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Little Fox River, and
  - Wyaconda River.

Figure 11: Number of Volunteer Water Quality Sampling Events Conducted in 07110001 Bear-Wyaconda River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	---
2	1	3	---
3	0	0	---
4		0	---

Active Nonpoint Source Projects

- ***319 NPS Projects***
  - Fox River Ecosystem Development Project (G03-NPS-07)
  - "It's the Water" Workshop (G05-NPS-28)
- ***AgNPS SALT Project***
  - Little Fox River (SN038)

Figure 12: AgNPS SALT Project Plan Goals for HUC 07110001.

Watershed Name	Little Fox Creek
Project #	SN038
Watershed Size (ac)	39,481
Cropland (ac)	10,500
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	4,365
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	
Urban Treated in Plan (ac)	
Woodland (ac)	
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	21,056
Other Treated in Plan (ac)	
Stream (mi)	11
Stream Treated in Plan (mi)	

Figure 13: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110001.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	400
Field Border (Ft.)	3,700	Terraces (Ft.)	154,176
Filter Strip (Ac.)	34	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	12	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	34	Critical Planting (Ac.)	54
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	24
Windbreak (Ft.)	0	Water/Sediment Basins (#)	8
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	65	CRP Acres	452
CSP Acres	0	WRP Acres	142
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	0
Conservation Reserve Program	32	11
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Figure 14: Summary of FFY2006 319 NPS Project Evaluation Measures: 07110001 Bear-Wyaconda.

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**3**	**16**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**

(Total Maximum Daily Loads)

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**4**	**42**	**2**	**14**	**2**	**14**	**1**	**100**

	Reports Developed	Reports Distributed	Newsletters Developed	Newsletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**4**	**4**	**2**	**600**	**1**	**10**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**3**	**6**	**12**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**16**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**7**	**0**	**7**	**1,078**	**625**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**25**	**1,939**	**4,300**	**300**	**22,250**	**10,725**	**390**

(Best Management Practices)

North Fabius River Basin
(HUC 07110002)
Missouri Basin Name – North Fabius River Basin

The North Fabius River basin, HUC 07110002, lies in northeastern Missouri in portions of Schuyler, Scotland, Adair, Knox, Clark, Lewis, and Marion counties, except for a very small portion of the watershed that extends into southeastern Iowa. The largest tributaries are the North and Middle Forks of the Fabius. These streams all flow in a southeasterly direction and join just a few miles before flowing into the Mississippi River near West Quincy. The North Fabius River basin is characterized by a mixture of hills and open plains with the major land use being agricultural.

In this river basin, the most serious nonpoint source pollution problem is degradation of aquatic habitat. Most of the classified streams in the basin are considered to have degraded aquatic habitat partially due to channelization in a number of basin streams. Several reservoirs in the basin serve as drinking water supplies.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
  Current developing a watershed plan for North Fabius Watershed. Watershed Management Plan Worksheet completed.
- ***TMDL*** -
  #7015 Deer Ridge Community Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
  #7020 Lewistown Lake
  Impaired by atrazine and cyanazine.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7020-lewistown-lk-info.pdf
  #0063 Middle Fabius River
  Impaired by manganese from natural conditions.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0063-m-fabius-r-info.pdf
  #0056 North Fabius River
  Impaired for manganese from natural conditions.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
  Impaired for sediment.
  TMDL approved by EPA on November 15, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/north_fabius_river_final_tmdl_111506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Memphis *(PWSSID # 2010513)*
  Memphis Lake (Old)
  Memphis Lake (New)
  Memphis Pre-Settlement Basin
- ***Watershed Groups Formed*** – none
- ***Rapid Watershed Assessment*** – NRCS watershed assessment and planning document for the entire HUC 8

Water Quality Monitoring

- ***Active USGS Gaging Station(s)***- 2
- ***Groundwater-Level Observation Well Network*** –Vandike Farms (Schuyler County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Long Branch (North Fabius River),
  - North Fork North Fabius River

Figure 15: Number of Volunteer Water Quality Sampling Events Conducted in 07110002 North Fabius River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	1	1
2	0	2	1
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Habitat for Community (G05-NPS-22)
- ***AgNPS SALT Projects*** –
  - South Fork North Fabius (SN065)
  - North Fork/Middle North Fabius (SN066)

Figure 16: AgNPS SALT Project Plan Goals for HUC 07110002.

Watershed Name	S. Fork North Fabius	N. Fork/ M. Fork N. Fabius	Total
Project #	SN065	SN066	
Watershed Size (ac)	51,484	42,092	93,576
Cropland (ac)	15,817	15,083	30,900
Cropland Treated in Plan (ac)	5,000	5,000	10,000
Pasture/Hayland (ac)	22,923	14,040	36,963
0Pasture/Hayland Treated in Plan (ac)	5,000	2,900	7,900
CRP Land (ac)	6,808	5,762	12,570
CRP Treated in Plan (ac)	500	1,500	2,000
Urban (ac)	0	401	401
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,418	4,578	8,996
Woodland Treated in Plan (ac)	300	0	300
Public Land (ac)	1,518	90	1,608
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	0	2,138	2,138
Other Treated in Plan (ac)	0	0	0
Stream (mi)	82	65	147
Stream Treated in Plan (mi)	12	12	24

Figure 17: NRCS and Partner Contributions: HUC 07110002.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	217,254
Filter Strip (Ac.)	19	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	1	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	16	Critical Planting (Ac.)	6
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	12
Windbreak (Ft.)	0	Water/Sediment Basins (#)	3
waste Utilization (Ac.)	109	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	579	CRP Acres	1006
CSP Acres	0	WRP Acres	67
WHIP Acres	47	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	4	3
Conservation Reserve Program	41	23
Conservation Security Program	0	0
Wetland Reserve Program	2	2
Wildlife Hab. Incentive Program	0	1
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

South Fabius River Basin
(HUC 07110003)
Missouri Basin Name – South Fabius River Basin

The South Fabius River basin, HUC 07110003, lies in northeastern Missouri in portions of Schuyler, Knox, Lewis, Shelby, Adair, Scotland, and Marion counties. The South Fabius and Troublesome Creek and their tributaries all flow in a southeasterly direction and join just a few miles before flowing into the Mississippi River near West Quincy. A mixture of hills and open plains characterizes the basin.

In this river basin, the most serious nonpoint source pollution problem is degradation of aquatic habitat. Most of the classified streams in the basin are considered to have degraded aquatic habitat partially due to channelization in a number of basin streams. Several reservoirs in the basin serve as drinking water supplies.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – currently developing a Source Water Protection Plan
- ***TMDL*** -

  #7026 Edina Reservoir
  Impaired by atrazine and cyanazine.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7026-edina-lk-info.pdf

  #7023 LaBelle Lake #2
  Impaired by atrazine and cyanazine.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7022-7023-la-belle-lk-info.pdf
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #0073 Troublesome Creek
  Impaired by manganese.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0073-troublesome-ck-mn-info.pdf
  Impaired by sediment.
  TMDL approved by EPA on November 22, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/troublesome_creek_tmdl_112206.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Source Water Protection Plans*** –
  Forest Lake/Hazel Creek
- ***Watershed Groups Formed*** –
  Forest Lake/Hazel Creek Watershed Group

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - South Fabius River

Figure 18: Number of Water Quality Sampling Events Conducted in 07110003 South Fabius River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	0
2	2	2	2
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Habitat for Community (G05-NPS-22)
- ***AgNPS SALT Project*** – none

Figure 19: NRCS and Partner Contributions: HUC 07110003.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	2900	Terraces (Ft.)	52,648
Filter Strip (Ac.)	57	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	1	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	14	Critical Planting (Ac.)	4
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	11
Windbreak (Ft.)	0	Water/Sediment Basins (#)	3
waste Utilization (Ac.)	109	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	207	CRP Acres	1671
CSP Acres	0	WRP Acres	97
WHIP Acres	27	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	3
Conservation Reserve Program	35	26
Conservation Security Program	1	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	1	2
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

The Sny River Basin
(HUC 07110004)
Missouri Basin Name – North River-Bobs Creek

The Sny River Basin, HUC 07110004, lies in northeastern and eastern Missouri and encompasses the watersheds of the North and South Rivers and several small direct tributaries to the Mississippi River in Pike and Lincoln counties. Other counties included within this unit include Knox, Monroe, Marion, St. Charles, Shelby, Ralls, and Lewis. North River originates in Knox County near Novelty and flows eastward into the Mississippi River. Aside from North River, the larger streams in this basin include South River, Noix, Buffalo, Bryant and Bobs creeks, all of which flow directly into the Mississippi River. The basin also contains the Old Kings Lake slough, with 22 miles of standing or slowly flowing waters in the Mississippi River floodplain in Lincoln County. The basin is 1,018 square miles in area, with 237.5 miles of classified streams in the basin. The largest reservoir in the basin is Hunnewell Lake with a surface area of 228 acres. There are two small public drinking water reservoirs in this basin that serve the town of Bowling Green. A mixture of hills and open plains characterizes the basin. Basin-wide, 38% of the land is row crop, 37% is pasture and hay fields, 22% forest, and 1% open water. Most water movement in the basin is through the surface stream network. There are 34 small springs of note in the basin. None of these sustain flow in dry weather.

In the North River basin, the most serious nonpoint source pollution problem is degradation of aquatic habitat. A total of 86.5 miles (36 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 15 miles (six percent) of streams in the basin. Studies of private well water quality in northeastern Missouri have shown that about 20 percent of all private wells sampled exceeded drinking water standards for nitrate. One to two percent of wells exceeded drinking water standards or health advisory levels for pesticides, most commonly the herbicides Atrazine or Alachlor. This contamination is often caused by local land use practices or surface contamination of the wellhead and does not represent widespread contamination of the underground aquifer. Deeper aquifers are protected from surface contamination by impermeable strata.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  NRCS Rapid Watershed Assessment and plan for entire HUC 8.
- ***TMDLs***
  #7029 Hunnewell Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
  #0001 Mississippi River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** - none

- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Bowling Green *(PWSSID # 2010093)*
  Bowling Green Lake Reservoir (New) Intake #2
  Bowling Green Lake Reservoir (Old) Intake #1
  City of Palmyra *(PWSSID # 2010623)*
  North River Emergency Supply Intake
  City of Monroe City *(PWSSID #2010538)*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bear Creek,
  - South Fork North River, and
  - South River.

Figure 20: Number of Volunteer Water Quality Sampling Events Conducted in 07110004 The Sny River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	1	0
2	3	7	2
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - "It's the Water" Workshop (G05-NPS-28)
- ***AgNPS SALT Project*** - none

Figure 21: NRCS and Partner Contributions: HUC 07110004.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	900
Field Border (Ft.)	0	Terraces (Ft.)	35,310
Filter Strip (Ac.)	4	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	2	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	22	Critical Planting (Ac.)	4
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	50	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	917	CRP Acres	595
CSP Acres	0	WRP Acres	122
WHIP Acres	156	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	3	1
Conservation Reserve Program	39	14
Conservation Security Program	0	0
Wetland Reserve Program	2	2
Wildlife Hab. Incentive Program	4	6
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Figure 22: Public Drinking Water Program's CREP Grant for HUC 07110004.

PWS	Lake Name	Grant Accepted	AWARD $	acres (CRP1)	old crop acres	% enrolled	# of contracts
Bowling Green	Bowling Green new Lake, Bowling Green old Reservoir	13-Sep-04	$9,645.90	86.9	314.4	27.64%	2

North Fork Salt River Basin
(HUC 07110005)
Missouri Basin Name – North Salt River Basin

The North Fork of the Salt River Basin, HUC 07110005, lies in northeastern Missouri. North Fork Salt River originates in Schuyler County near Queen City, includes portions of Macon, Adair, Monroe, Knox, and Shelby counties, and flows into Mark Twain Lake. The major tributary streams in this basin are Bear, Black, Crooked, and Otter creeks. The downstream end of the basin occurs where these streams flow into Mark Twain Lake. The basin is 893 square miles in area. The largest reservoir in the basin is La Plata New Lake, with a surface area of 81 acres. There are four public drinking water reservoirs. A mixture of hills and open plains characterizes the North Fork of the Salt River basin. The western uplands of the basin lie within the Central Claypan, an area of very flat lands dominated by row crop agriculture. Basin-wide, 44% of the land is row crop, 42% grasslands, 11% forest and 1% urban. Most water movement in the basin is through the surface stream network.

The major nonpoint source pollution problems result from agriculture and loss of habitat. All 202 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 53 miles (26 percent) of streams in the basin. During warm weather, when streams are low, livestock tend to gather in and around streams. The wastes they leave in the water contribute to nuisance algae growths, low levels of dissolved oxygen and elevated levels of ammonia and bacteria.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** -
  - Shelbina Lake Watershed Plan
    http://www.mowin.org/Training/WQMP/pdf/shelbina.pdf
  - North Fork of Salt River (WRAS) – Subgrant No. G03-NPS-01
    http://www.mowin.org/Training/WQMP/pdf/nfsaltwras.pdf
- ***TMDL*** -

  #0115U Bear Creek
  Impaired by unknown pollutant.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/9001-bear-ck-info.pdf

  #7033 Mark Twain Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Watershed Groups Formed***-
  - 2004 Turf Issues Workshop Planning Committee
  - 2004 Water Festival Planning Committee
  - Target MAP Planning Committee
  - Shelbina Watershed Committee
  - Community Wastewater Program Committee
  - Youth Retreat Committee
  - Regional Watershed Conference Committee
  - On-site Sewage Workshop Committee
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Shelbina *(PWSSID # 2010736)*
  Salt River Intake
  Shelbina Lake

Clarence Cannon Wholesale Water Commission *(PWSSID # 2020421)*
Mark Twain Lake
City of Kirksville *(PWSSID # 2010219) – pending approval*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** – Shelbina (Shelby County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Unnamed Tributary to the North Fork Salt River
  - North Fork Salt River

Figure 23: Number of Volunteer Water Quality Sampling Events Conducted in 07110005 North Fork Salt River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	1	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Stewardship implementation Project (G02-NPS-15)
  - Habitat for Community (G05-NPS-22)
- ***AgNPS SALT Project*** –
  - North Fork of Salt River (Knox County) (SN047)
  - North Fork of Salt River (Shelby County) (SN053)

Figure 24: AgNPS SALT Project Plan Goals for HUC 07110005

Watershed Name	North Fork Salt River	North Fork Salt River	Total
Project #	SN047	SN053	
Watershed Size (ac)	44,124	64,666	108,790
Cropland (ac)	16,364	23,698	40,062
Cropland Treated in Plan (ac)	6,150	10,000	16,150
Pasture/Hayland (ac)	19,229	28,835	48,064
Pasture/Hayland Treated in Plan (ac)	7,100	2,500	9,600
CRP Land (ac)	3,848	2,675	6,523
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	38	216	254
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,563	11,547	16,110
Woodland Treated in Plan (ac)	500	500	1,000
Public Land (ac)	0	276	276
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	82	419	501
Other Treated in Plan (ac)	0	0	0
Stream (mi)	120	132	252
Stream Treated in Plan (mi)	60	5	65

Figure 25: NRCS and Partner Contributions: HUC 07110005.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	600
Field Border (Ft.)	0	Terraces (Ft.)	82,594
Filter Strip (Ac.)	5	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	19	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	129	Critical Planting (Ac.)	17
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	23
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	1412	CRP Acres	2470
CSP Acres	0	WRP Acres	717
WHIP Acres	6	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	52	29
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	0	1
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Figure 26: Public Drinking Water Program's CREP Grant for HUC 07110005.

PWS	Lake Name	Grant Accepted	AWARD $	Acres (CRP1)	old crop acres	% enrolled	# of contracts
Shelbina	Shelbina Lake	23-Aug-01	$11,159.10	99.2	737.20	13.46%	4

South Fork Salt River Basin
(HUC 07110006)
Missouri Basin Name – Middle-South Forks of the Salt River

The Middle, Elk, and South Forks of the Upper Salt River basin, HUC 07110006, lies in northeastern Missouri and encompasses much of Monroe, Audrain, eastern Randolph and Macon, and portions of Callaway, Shelby, and Boone counties. The major streams in this basin are the Middle Fork, Elk Fork and South Fork of Salt River. The downstream end of the basin occurs where these streams flow into Mark Twain Lake. The basin is 1,214 square miles in area. The largest reservoir in the basin is Teal Lake with a surface area of 76 acres. There are no public drinking water reservoirs in this basin.

The uppermost portion of the basin is an area of very flat lands dominated by row crop agriculture. Basin-wide, 50% of the land is row crop, 34% is grassland, 13% forest and 1% open water. Most water movement in the basin is through the surface stream network. There are only two small springs of note in the basin, and neither sustains flow during dry weather.

All 316 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat. The quality of aquatic habitat is impaired by large amounts of removed wooded riparian vegetation and by the channelization of streams. Channelization has occurred in seven miles (two percent) of streams in the basin. Stormwater runoff of fertilizers, animal wastes, and pesticides into streams contribute to nonpoint source pollution. Studies of private well water quality in northeastern Missouri have shown that about 20 percent of all private wells sampled exceeded drinking water standards for nitrate and one to two percent of wells exceeded drinking water standards or health advisory levels for pesticides, most commonly the herbicides Atrazine or Alachlor.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL***

  #0121 Middle Fork Salt River
  Impaired by sediment.
  TMDL approved by EPA November 1, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/middle_fork_salt_river_final_110106.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #7033 Mark Twain Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/pubs/pub2100.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** –
  - ***City of Macon*** *(PWSSID #2010487)*
  - ***Mexico Water District*** *– MAWC (PWSSID #2010519) - pending issue*
  - ***City of Moberly*** *(PWSSID #2010513) – pending issue*
  - ***Clarence Cannon Wholesale Water Commission*** *(PWSSID #2020421)*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Mexico (Audrain County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Elk Fork (Salt River),
  - South Fork Salt River.

Figure 27: Number of Volunteer Water Quality Sampling Events Conducted in 07110006 South Fork Salt River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	1	1
2	1	1	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** –
  - Bee and Turkey Creeks (SN034)

Figure 28: AgNPS SALT Project Plan Goals for HUC 07110006.

Watershed Name	Bee and Turkey Creek
Project #	SN034
Watershed Size (ac)	22,806
Cropland (ac)	592
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	6,816
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	459
Urban Treated in Plan (ac)	
Woodland (ac)	2,924
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	15
Other Treated in Plan (ac)	
Stream (mi)	39
Stream Treated in Plan (mi)	

Figure 29: NRCS and Partner Contributions: HUC 07110006.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	12,169	Terraces (Ft.)	114,669
Filter Strip (Ac.)	6	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	35	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	48	Critical Planting (Ac.)	7
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	20
Windbreak (Ft.)	3553	Water/Sediment Basins (#)	3
waste Utilization (Ac.)	0	Wells Decomissioned (#)	5
Nutrient Management (Ac.)	616	CRP Acres	1380
CSP Acres	108	WRP Acres	131
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	6	2
Conservation Reserve Program	58	30
Conservation Security Program	2	1
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Salt River Basin
(HUC 07110007)
Missouri Basin Name – Lower Salt River Basin

The Salt River basin, HUC 07110007, lies in northeastern Missouri and flows east to its confluence with the Mississippi River about 20 miles southeast of Hannibal. The basin includes all of Mark Twain Lake and the watershed of the Salt River downstream of Mark Twain Lake. Counties within this unit are Marion, Pike, Ralls, Shelby, Audrain, and Monroe. The basin is 794 square miles in area and the major tributaries include Spencer and Peno creeks. The largest reservoir in the basin is Mark Twain Lake with a surface area of 18,600 acres. A mixture of hills and open plains characterizes the Lower Salt River basin. Land use consists of 50% row crop, 26% grasslands, 21% forest, and 3% open water. There are 22 known small springs. Most water movement in the basin is through the surface stream network.
A total of 18 miles (14 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Nonpoint source pollution results from sediment, nutrients and pesticides from crop fields and removal of wooded riparian vegetation. The state standard for the maximum allowable level of Atrazine in a raw public water supply is 3 ug/l as an average. Long term Atrazine levels in Monroe City Route J Lake and Vandalia Lake exceed this standard. Average levels of a second herbicide, Cyanazine, exceed Federal Drinking Water Health Advisory guidelines of 1 ug/l in Monroe City Route J Lake.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9-element plan being written for Vandalia Lake, HUC 07110007030003
    Status is being developed through G00-NPS-12
  - Monroe City Reservoirs Watershed Plan
    http://www.mowin.org/Training/WRAS/Monroecity.pdf
- ***TMDLs*** -

  #7033 Mark Twain Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #7031 Monroe City Route J Lake
  Impaired by atrazine and cyanazine.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7031-monroe-city-lk-info.pdf

  #0091 Salt River
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
  Impaired by manganese.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0091-0103-salt-r-info.pdf

  #0103 Salt River
  Impaired by manganese and iron.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0091-0103-salt-r-info.pdf

  #7032 Vandalia Lake
  Impaired by atrazine.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7032-vandalia-lk-info.pdf
- ***Watershed Groups Formed*** -
  - Monroe City Resources Steering Committee
  - Vandalia Watershed Management Committee

- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  - ***City of Monroe City*** *(PWSSID # 2010538)*
    Monroe South Lake
    Route J Lake
  - ***City of Vandalia*** *(PWSSID #2010812) – pending issue*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 5
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** – No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects –***
  - "It's the Water" Workshop (G05-NPS-28)
- ***AgNPS SALT Project*** – none

Figure 30: NRCS and Partner Contributions: HUC 07110007.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	39,774
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	42	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	4	Critical Planting (Ac.)	10
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	5
Windbreak (Ft.)	0	Water/Sediment Basins (#)	16
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	4636	CRP Acres	1316
CSP Acres	0	WRP Acres	51
WHIP Acres	106	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	85	40
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	2	3
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Figure 31: Public Drinking Water Program's CREP Grant for HUC 07110007.

PWS	Lake Name	Grant Accepted	AWARD $	Acres (CRP1)	old crop acres	% enrolled	# of contracts
Monroe City	South Lake	06-Feb-04	$2,958.85	29.5	3511.00	0.84%	2
Vandalia	Vandalia Reservoir	18-Sep-01	$8,038.07	88.5	1589.70	5.57%	2

Cuivre River Basin
(HUC 07110008)
Missouri Basin Name – Cuivre River

The Cuivre River basin, HUC 07110008, lies in east central Missouri and flows in a southeasterly direction to its confluence with the Mississippi River about 15 miles northwest of St. Charles. It flows through portions of Audrain, Montgomery, Warren, Lincoln, Pike, Ralls, and St. Charles counties. The basin is 1,260 square miles in area and the major tributaries include the North and West Forks of the Cuivre River, and Indian, Coon, Elkhorn, Bear, and Big creeks. The largest reservoir in the basin is Golden Eagle Lake with a surface area of 141 acres. The western portion of the basin is part of the Central Claypan area, a flat landscape dominated by row crop agriculture. The remainder of the basin is a mixture of hills and plains with more pasture and forested land. In total, 53% of the land is row crop, 26% is grassland and 19% forest.

There are many small springs along the lower North Fork Cuivre River and its tributaries and along the lower portion of the West Fork. There are few springs in the remainder of the basin. Most water movement in the basin is through the surface stream network. Groundwater from bedrock aquifers is used for all public and most private drinking water supplies in this basin. There are no public drinking water reservoirs in this basin. Along the northern and western edges of the basin, bedrock aquifers become increasingly saline and are unfit for either drinking water or agricultural irrigation. The most serious nonpoint source pollution problem is degradation of aquatic habitat. A total of 121 miles (30%) of classified streams in the basin are considered to have degraded aquatic habitat.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Elk Horn River – developing a nine-element plan for subwatersheds 0711000820004 and 0005
- ***TMDLs –***

  #0189 Elkhorn Creek
  Impaired by BOD and VSS.
  Permit-in-lieu (PIL) of TMDL approved by EPA May 1, 2006.
  PIL http://www.dnr.mo.gov/env/wpp/tmdl/0189-elkhorn-ck-pil.pdf
  MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0084158.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0189-elkhorn-ck-bod-info.pdf
  Impaired by sediment.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #0212 Indian Camp Creek
  Impaired by NVSS and ammonia nitrogen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0212-indian-camp-ck-info.pdf

  #0159 Mill Creek
  Impaired by sediment.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Watershed Groups Formed*** –
  - Elk River Watershed Improvement Association
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

  City of Troy *(PWSSID # 6010798)*
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** – 1
- ***Groundwater-Level Observation Well Network*** – New Florence (Montgomery County), Troy 1(Shallow) and Troy 2 (Deep) (Lincoln County), Wentzville (St. Charles)
- ***Stream Teams*** – No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** –
  - Elkhorn Creek (SN016)
  - Bear and Brush Creeks (SN077)

Figure 32: AgNPS SALT Project Plan Goals for HUC 07110008.

Watershed Name	Elkhorn Creek	Bear and Brush Creeks	Total
Project #	SN016	SN077	
Watershed Size (ac)	62,830	71,347	134,177
Cropland (ac)	42,000	39,932	81,932
Cropland Treated in Plan (ac)		8,845	8,845
Pasture/Hayland (ac)	7,900	15,295	23,195
Pasture/Hayland Treated in Plan (ac)		1,703	1,703
CRP Land (ac)		1,350	1,350
CRP Treated in Plan (ac)		0	0
Urban (ac)	1,400	298	1,698
Urban Treated in Plan (ac)		0	0
Woodland (ac)	8,200	13,869	22,069
Woodland Treated in Plan (ac)		660	660
Public Land (ac)		88	88
Public Land Treated in Plan (ac)		0	0
Other (ac)	3,330	515	3,845
Other Treated in Plan (ac)		0	0
Stream (mi)		160	160
Stream Treated in Plan (mi)		1	1

Figure 33: NRCS and Partner Contributions: HUC 07110008.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	5880
Field Border (Ft.)	34,882	Terraces (Ft.)	175,847
Filter Strip (Ac.)	46	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	59	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	18	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	9
Windbreak (Ft.)	0	Water/Sediment Basins (#)	10
waste Utilization (Ac.)	0	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	2044	CRP Acres	1529
CSP Acres	0	WRP Acres	0
WHIP Acres	71	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	4	1
Conservation Reserve Program	61	34
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/.

Peruque-Piasa River Basin
(HUC 07110009)
Missouri Basin Name – Peruque-Dardenne Creeks

The Peruque-Piasa basin, HUC 07110009, lies within Warren, Lincoln and St. Charles counties. Peruque and Dardenne creeks are the main streams in the basin. Peruque Creek originates in Warren County, and Dardenne Creek begins in western St. Charles County. Both streams flow easterly through a heavily urbanized area and gradually turn north to flow into the Mississippi River. Peruque Creek forms Lake St. Louis and Lake Ste. Louise.

Nonpoint source pollution results from stormwater flow over impervious surfaces. Pollutants from urban sources such as oil and other car fluids, road salt, pet waste, lawn fertilizer, and sediment from construction areas all impact the water quality. Lack of riparian habitat causes streambank erosion. Much of Dardenne Creek has been channelized which results in loss of habitat and flash flooding.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

  #0221 Dardenne Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0221-dardenne-ck-info.pdf

  #7055 Lake Ste. Louise
  Impaired by fecal coliform.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7055-lk-ste-louise-info.pdf

  #0001 Mississippi River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf

  #0217 Peruque Creek
  Impaired by NVSS.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0217-0218-peruque-ck-info.pdf

  #0218 Peruque Creek
  Impaired by NVSS.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0217-0218-peruque-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** – The following water bodies were monitored between October 1, 2005and September 30, 2006:
  - Crooked Creek,
  - Dardenne Creek,
  - Sandfort Creek,
  - Spencer Creek, and
  - Unnamed Tributary to Belleau Creek.

Figure 34: Number of Volunteer Water Quality Sampling Events Conducted in 07110009 Peruque-Piasa River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	8	18	8
2	0	22	0
3	0	0	0
4	1	20	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** – none

Figure 35: NRCS and Partner Contributions: HUC 07110009.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	91
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	2	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/.

Cahokia-Joachim River Basin
(HUC 07140101)
Missouri Basin Name – Mississippi River Tribs- St. Louis-Ste. Genevieve

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Cahokia-Joachim portion, HUC 07140101, stretches along the eastern border of St. Louis City, St. Louis County, Jefferson, St. Charles, St. Francis, and Ste. Genevieve counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway.

What is locally referred to as the "batture" lands are unprotected lands inside the levees and bluffs on both the Missouri and Illinois sides, within the floodplain of the river. A 140-mile stretch of the "open river" begins just north of St. Louis, Missouri, at the confluence of the Missouri River and runs south to the confluence of the Ohio River near Cairo, Illinois. This section is called the open river because it is free of dams and does not have as intricate a levee and drainage system as does the river below Cairo. This area sustained much of the $12 billion in damages caused by the Great Flood of 1993.

The World Resources Institute (WRI) brief, *Awakening the Dead Zone* (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources. Loss of aquatic, wetland, and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped to maintain water quality.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Upper Big River – developing nine-element plan for 07140101080003, 07140104010004, 0005, and 0006
- ***TMDL*** -

#1746 Big Bottom Creek
Impaired by BOD and VSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1746-big-bottom-ck-info.pdf

#1707 Mississippi River
Impaired by chlordane and PCBs.
TMDL approved by EPA on November 3, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf

#1707 Mississippi River
Impaired by lead and zinc.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1707-miss-r-info.pdf

#9003 River des Peres
Impaired by low dissolved oxygen.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/9003-river-des-peres-info.pdf

#1714 Rock Creek
Impaired by BOD and ammonia nitrogen.
TMDL approved by EPA on December 1, 1999.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1714-rock-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1714-rock-ck-info.pdf

- ***Watershed Groups Formed*** -
  - Earth Day Symposium Planning Committee
  - Great River Planning Sub-committee
  - Community Design and Water Quality Planning Sub-committee
  - Green Buildings Planning Sub-committee
  - Water Resources Advisory Council Brochure Project Focus Group Review Committee
  - River des Peres Coalition
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  Ste. Genevieve PWSD #1 *(PWSSID # 4024543 and # 4024544)*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 15
- ***Groundwater-Level Observation Well Network*** - Columbia Bottoms (St. Louis), Festus, DeSoto, and South Jefferson County (Jefferson County)
- ***Stream Teams*** – The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Black Creek,
  - Deer Creek,
  - Maline Creek,
  - Plattin Creek,
  - River des Peres,
  - Rock Creek,
  - Sandy Creek,
  - Shady Grove Creek,
  - Tributary to Unnamed Tributary to Maline Creek,
  - Twomile Creek,
  - Unnamed Tributary to Black Creek,
  - Unnamed Tributary to River des Peres,
  - Unnamed Tributary to River des Peres (Engelholm),
  - Unnamed Tributary to Lake Wauwanoka (Dry Creek), and
  - Watkins Creek.

Figure 36: Number of Volunteer Water Quality Sampling Events Conducted in 07140101 Cahokia-Joachim Creek Basin

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	9	17	3
2	3	13	5
3	6	21	8
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Clean Water Education & Resources Project (G06-NPS-22)
  - Earth Day Symposium 2005 (G05-NPS-26)
  - River des Peres Southwest Branch Water Quality Project (G06-NPS-18)
- ***AgNPS SALT Project*** - none

Figure 37: NRCS and Partner Contributions: HUC 07140101.

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	235
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	4	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	6
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	386
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	21	10
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/.

Figure 38:

Summary of FY06 319 NPS Project Evaluation Measures

Cahokia-Joachim

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**1**	**2**	**0**	**1**	**1**	**8,200**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**1**	**0**	**1**	**1**	**0**	**2**	**3**	**3**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									

Meramec River Basin
(HUC 07140102)
Missouri Basin Name – Meramec River Basin

The Meramec River basin, HUC 07140102, is located in east central Missouri in Crawford, Dent, Franklin, Iron, Jefferson, Phelps, Reynolds, St. Louis, Texas, and Washington counties. The Meramec River and its tributaries drain 2,149 square miles. The main stem of the Meramec's 218 linear miles carries water from the lightly populated, forested, and agricultural upper watershed northeasterly to the heavily populated and urbanized lower watershed to enter the Mississippi River below St. Louis. Meramec tributaries of fifth order or greater include Courtois, Crooked, Dry, Dry Fork, Huzzah, and Indian creeks and the Little Meramec River. Meramec base flows are well sustained by springs characteristic of the region's karst topography and by drainage from the Big and Bourbeuse rivers, two major tributaries.

Meramec River basin landcover consists of roughly 50% forest, 25% pasture, and 25% cropland, rural transportation, urban development, water, and other minor land uses combined. Within the upper Meramec River portion, nearly one third of the forestland is privately owned. The Mark Twain National Forest covers a large area in the remaining two thirds. Major resource uses within the Meramec River basin include grazing, logging, and mining lead, iron, sand and gravel. There is a current trend toward increasing numbers of cattle and increasing grazing density. Where cattle have free access to streams, this trend causes more stream-channel disturbance. Also, gravel mining contributes to the accelerated transport of sediments in the Meramec River basin.

Overall, water quality within the Meramec River basin is good. Segments of Courtois Creek, Huzzah Creek, Blue Springs Creek, and the Meramec River are Outstanding State Resource Waters. Nonpoint source pollution problems result from cattle grazing on creek bottom pastures with access to streams where they damage riparian areas and cause excessive nutrient loading of the streams. In the upper basin, impoundments containing tailings from mining operations pose a potential threat to stream water quality. The lower watershed from Eureka to Fenton is an urbanized zone that poses other threats to water quality. Sediment and pollution-laden runoff enter the lower Meramec system rapidly because of impervious surfaces from development and the channelization of tributaries.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - La Barque Creek – currently rewriting a watershed plan
- ***TMDL*** -

#2184 Grand Glaize Creek
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#1946 Indian Creek
Impaired by zinc.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1946-indian-ck-info.pdf

#1846 Meramec River
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#2190 Saline Creek
Impaired by BOD and ammonia nitrogen.
TMDL approved by EPA on January 12, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2190-saline-ron-rog-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2190-saline-ck-ron-rog-info.pdf
#7280 Schuman Park Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
#1870 Spring Branch
Impaired by BOD and VSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1870-spring-ck-info.pdf

- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Cuba *(PWSSID # 6010200)*
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 16
- ***Groundwater-Level Observation Well Network*** – Bixby (Iron County), Eureka (St. Louis County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Brush Creek,
  - Fox Creek,
  - Grand Glaize Creek,
  - Keifer Creek,
  - La Barque Creek,
  - Mattese Creek,
  - Meramec River,
  - Pierce Creek,
  - Saline Creek,
  - Sugar Creek,
  - Unnamed Tributary to Brush Creek, and
  - Williams Creek.

Figure 39: Number of Volunteer Water Quality Sampling Events Conducted in 07140102 Meramec River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	5	8	3
2	8	31	1
3	7	14	2
4	0	14	1

Active Nonpoint Source Projects

- ***319 NPS Projects*** –
  – Clean Water Education & Resources Project (G0-NPS-22)
- ***AgNPS SALT Project*** - none

Figure 40: NRCS and Partner Contributions: HUC 07140102

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 07140102

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	235
Field Border (Ft.)	3,000	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	1	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	61	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	119
CSP Acres	0	WRP Acres	1151
WHIP Acres	51	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	6	4
Conservation Security Program	0	0
Wetland Reserve Program	0	1
Wildlife Hab. Incentive Program	1	3
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/.

Bourbeuse River Basin
(HUC 07140103)
Missouri Basin Name – Bourbeuse River Basin

The Bourbeuse River watershed, HUC 07140103, is located within the northeastern quarter of the Ozark Highlands. The main stem of the Bourbeuse River winds northeasterly through Phelps, Gasconade, and Franklin counties to join the Meramec River; its watershed additionally encompasses portions of Maries, Osage, and Crawford counties. The Bourbeuse River is 147 miles from mouth to headwaters, and the lower 132 miles have permanent flow. The Bourbeuse River watershed drains 843 square miles and is composed of a number of smaller watersheds including Spring Creek, Boone Creek, Brush Creek, Red Oak Creek, Dry Fork, Little Bourbeuse River, and the Lower Bourbeuse River. Land uses within the watershed consist of 45% cropland and pasture found primarily within stream floodplains, 51% deciduous forest, and the remainder a mixture of other forest types, shrub and brush rangeland, and urban areas. Most of the urban-type land use is found in the lower watershed near Union.

Water quality in the Bourbeuse River watershed is generally good. Nonpoint source pollution in the form of sediment from erosion and organic wastes from livestock are the main problems.

Stream habitat conditions within the Bourbeuse River and its tributaries are variable. The main stem has no channelized segments, and old mill dams located near Beaufort and Union provide channel grade controls. A number of tributaries are impounded, with the largest impoundment being Indian Lake (326 acres) in the Brush Creek subwatershed. In many streams, the lack of adequate riparian corridors, excessive nutrient loading, streambank erosion, excessive runoff and erosion, and the effects of extensive in-stream gravel mining are among the problems observed. Grazing practices along many streams contribute to streambank instability, nutrient loading, and poor riparian corridor conditions.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** –

#2034 Bourbeuse River
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#7382 Foxboro Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#7288 Indian Hills Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#2038 Red Oak Creek and Tributaries
Impaired by VSS.
Permit-in-lieu of TMDL approved by EPA on April 21, 2006.
PIL (not available online)
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0041068.pdf
Permit thttp://www.dnr.mo.gov/env/wpp/tmdl/info/2038-3360-3361-red-oak-trib-info.pdf

#3360 Red Oak Creek Tributary
Impaired by VSS.
Permit-in-lieu of TMDL approved by EPA on April 21, 2006.

PIL (not available online)
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0041068.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2038-3360-3361-red-oak-trib-info.pdf

#3361 Red Oak Creek Tributary
Impaired by VSS.
Permit-in-lieu of TMDL approved by EPA on April 21, 2006.
PIL (not available online)
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0041068.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2038-3360-3361-red-oak-trib-info.pdf

- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

City of Belle *(PWSSID # 3010054)*
Groundwater

City of Cuba *(PWSSID # 6010200)*
Groundwater

City of Owensville *(PWSSID #6010618)- pending issue*
Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)***- 3
- ***Groundwater-Level Observation Well Network*** – St. Clair (Franklin), Rolla Industrial Park (Phelps)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Ausbin Creek, and
  - Little Bourbeuse River.

Figure 41: Number of Water Quality Sampling Events Conducted in 07140103 Bourbeuse River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	1	2
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 42:

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 07140103

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	1,820	Terraces (Ft.)	0
Filter Strip (Ac.)	101	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	1	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	72	Critical Planting (Ac.)	13
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	4
Windbreak (Ft.)	0	Water/Sediment Basins (#)	1
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	412	CRP Acres	376
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	3	1
Conservation Reserve Program	27	14
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Big River Basin
(HUC 07140104)
Missouri Basin Name – Big River Basin

The Big River Watershed Basin, HUC 07140104, is located in east-central Missouri and drains 955 square miles of the Ozark plateau in portions of Ste. Genevieve, St. Francis, Franklin, Washington, Jefferson, and Iron counties. Big River has eight 5th order tributaries and flows northward for 138 miles until it reaches the Meramec River. The majority of basin land use is forest and pasture with some row cropping along stream bottoms. However, urbanization is rapidly increasing in the lower basin. Ninety-five percent of the basin is privately owned and is used extensively for recreation, especially fishing. Basin streams exhibit typical Ozarkian characteristics: good water quality and fish habitat. Damage to some aquatic habitats and the potential for serious damage to several streams exists due to past lead and barite mining activity. Unsafe mine dams and poorly-stored mine waste continue to degrade habitat or biota in about 110 miles of basin streams.

Riparian corridor habitat is fair to good, with Big River having slightly better habitat than tributary streams. About 75% of basin's streambanks have either minimal or no erosion and are protected by trees or shrubs. Riparian corridors are negatively affected by riparian land use, especially along tributary streams. The major source of nonpoint source pollution in the basin comes from mine chat and tailings piles. The eroded mine waste has buried aquatic habitats in some basin streams, leading to extirpation of some benthic invertebrates. This sediment is associated with elevated levels of heavy metals. Habitat quality is threatened by potential releases of mine waste. A fish consumption advisory for some fish species is present on Big River due to lead contamination.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9–element plan for Big River 07140104010004, 07140104010004, 07140104010004, and 07140101080003; Status - being developed through G04-NPS-22 and G00-NPS-12
  - 9–element plan for Belew Creek HUC 07140104080007; Status - being developed through G06-NPS-03
- ***TMDL*** –

#2074 Big River
Impaired by lead.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2074-2080-2168-big-r-info.pdf

#2080 Big River
Impaired by lead & NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2074-2080-2168-big-r-info.pdf

#2168 Flat River Creek
Impaired by lead, NVSS, & zinc.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2074-2080-2168-big-r-info.pdf

#2128 Pond Creek Tributary
Impaired by NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2128-pond-ck-trib-info.pdf

#2170 Shaw Branch
Impaired by lead and NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2170-shaw-br-info.pdf

#2120 Shibboleth Creek
Impaired by NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2120-shibboleth-ck-info.pdf
#3282 Turkey Creek
Impaired by BOD & VSS.
TMDL approved by EPA on January 13, 2005.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3282-turkey-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3282-turkey-ck-info.pdf

- ***Watershed Groups Formed***
  - Steering Committee for Upper Big River Corridor Groundwater Protection and Well Decommissioning Project
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** – Potosi (Washington County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Big River,
  - Coonville Creek, and
  - Unnamed Tributary to Heads Creek.

Figure 43: Number of Water Quality Sampling Events Conducted in 07140104 Big River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	5	3	5
2	1	0	0
3	0	1	1
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects***
  - Upper Big River Corridor Groundwater Protection and Well Decommissioning (G04-NPS-22)
  - Belew Creek Watershed Management Plan Development (G06-NPS-03)
- ***AgNPS SALT Project –***
  - Upper Big River (SN078)

Figure 44: AgNPS SALT Project Plan Goals for HUC 07140104

Watershed Name	Upper Big River
Project #	SN078
Watershed Size (ac)	26,552
Cropland (ac)	300
Cropland Treated in Plan (ac)	100
Pasture/Hayland (ac)	6,752
Pasture/Hayland Treated in Plan (ac)	2,173
CRP Land (ac)	5
CRP Treated in Plan (ac)	0
Urban (ac)	2,700
Urban Treated in Plan (ac)	0
Woodland (ac)	13,500
Woodland Treated in Plan (ac)	2,335
Public Land (ac)	2,000
Public Land Treated in Plan (ac)	0
Other (ac)	1,295
Other Treated in Plan (ac)	0
Stream (mi)	20
Stream Treated in Plan (mi)	8

Figure 45:
(This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/)

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 07140104

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	7	Critical Planting (Ac.)	4
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	88
Nutrient Management (Ac.)	0	CRP Acres	107
CSP Acres	0	WRP Acres	0
WHIP Acres	143	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	5	4
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	3	1
EQIP Ground/Surface water plans	0	0

Figure 46:

Summary of FY06 319 NPS Project Evaluation Measures

Big

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**4**	**10**	**0**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**9**	**18**	**1**	**24**	**0**	**0**	**1,200**	**1,000**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**6**	**82**	**0**	**0**	**4**	**418**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**1**	**1**	**1**	**6**	**2**	**6**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									

Upper Mississippi- Cape Girardeau
(HUC 07140105)
Missouri Basin Name – Mississippi River Tribs- Ste. Genevieve- Cape Girardeau

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Upper Mississippi – Cape Girardeau portion, HUC 07140105, stretches along the eastern border of Ste. Genevieve, Perry, Cape Girardeau, Scott, St. Francis, Bollinger, and Mississippi counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway. What is locally referred to as the "batture" lands are unprotected lands inside the levees and bluffs on both the Missouri and Illinois sides, within the floodplain of the river.

A 140-mile stretch of the "open river" begins just north of St. Louis, Missouri, at the confluence of the Missouri River and runs south to the confluence of the Ohio River near Cairo, Illinois. This section is called the open river because it is free of dams and does not have as intricate a levee and drainage system as does the river below Cairo. This area sustained much of the $12 billion in damages caused by the Great Flood of 1993.

The World Resources Institute (WRI) brief, *Awakening the Dead Zone* (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources, loss of aquatic, wetland and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped maintain water quality.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #1707 Mississippi River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** -
  - Perry County Planning Group
  - Perry County Stream Team
  - Missouri Conservation Perry County Planning Group
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Apple Creek,
  - Dry Fork Cinque Homme Creek,
  - Falls Branch, and
  - Unnamed Tributary to South Fork Apple Creek.

Figure 47: Number of Volunteer Water Quality Sampling Events Conducted in 07140105 Upper Mississippi – Cape Girardeau River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	3	2
2	1	5	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Perry County Shallow Groundwater Assessment (G04-NPS-27)
- ***AgNPS SALT Project*** – none

Figure 48:
(This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/)

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 07140105

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	950
Field Border (Ft.)	95,109	Terraces (Ft.)	507
Filter Strip (Ac.)	60	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	108	Critical Planting (Ac.)	37
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	24
Windbreak (Ft.)	0	Water/Sediment Basins (#)	23
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	221	CRP Acres	1933
CSP Acres	415	WRP Acres	120
WHIP Acres	340	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	46	47
Conservation Security Program	1	1
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	4	3
EQIP Ground/Surface water plans	0	0

Whitewater Basin
(HUC 07140107)
Missouri Basin Name – Castor-Whitewater Rivers Basin

The Whitewater River basin includes portions of Cape Girardeau, Ste. Genevieve, Madison, Wayne, Perry, St. Francis, Bollinger, and Scott counties. The four primary streams in the 1,207-square mile watershed include the Castor River (6th order, 69 miles), Whitewater River (6th order, 56 miles) and Crooked Creek (5th order, 49 miles), which are now tributaries to the man-made Headwater Diversion Channel (7th order, 34 miles) that drains into the Mississippi River near Cape Girardeau, Missouri. The basin is primarily Ozarkian in nature with a steep descent into the Mississippi Lowlands and is characterized by a high incidence of permanent streams, diverse channel gradients and land use, which is 55% woodland, 22% grassland and 19% cropland. Only 30,100 people live in the basin, which is free of heavy industrial developments and major urban centers.

An abundant water supply provided by adequate precipitation, good infiltration, high subsurface storage and minimal runoff assures clean, sustained and stable base flows which help maintain high water quality. Nonpoint source pollution problems are generally moderate and local in nature. Nutrient loading from livestock waste, non-permitted gravel mining, sawdust leachate and occasional raw sewage bypasses sometimes constitute minor threats to basin streams. An estimated 6% of the streambanks are severely or moderately eroding. The quality of the corridor vegetation is typically good with 75% of the existing corridors in dense timber. Corridor widths, however, are variable and agricultural encroachment into narrow corridors causes some streambank erosion problems.

Soils in the basin are highly erosive when disturbed. The potential for sheet, rill and gully erosion is the highest in the state; but, few fine sediments actually reach stream channels because of modest cropland acreage and fairly good farming practices. Coarse sediments, however, are eroding from the wooded uplands and clogging some downstream reaches because of poor timber harvest and woodland grazing practices.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) for Hubble Creek HUC 07140107060001 Status - substantially implemented through G01-NPS-04
- ***TMDL*** - none
- ***Watershed Groups Formed*** -
  - Cape Girardeau County Stormwater Committee
  - Stormwater Advisory Committee (Cape Girardeau)
  - Hubble Creek SALT Steering Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – National Lead (Perry County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Little Whitewater Creek.

Figure 49: Number of Volunteer Water Quality Sampling Events Conducted in 07140107 Whitewater River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	0
2	1	1	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** –
  - Hubble Creek Watershed Restoration Project (G01-NPS-04)
- ***AgNPS SALT Project*** -
  - Hubble Creek (SN022)
  - Ramsey Creek (SN079)

Figure 50: AgNPS SALT Project Plan Goals for HUC 07140107

Watershed Name	Hubble Creek	Ramsey Creek	Total
Project #	SN022	SN079	
Watershed Size (ac)	44,875	22,606	67,481
Cropland (ac)	14,809	14,547	29,356
Cropland Treated in Plan (ac)		5,000	5,000
Pasture/Hayland (ac)	17,052	3,397	20,449
Pasture/Hayland Treated in Plan (ac)		1,115	1,115
CRP Land (ac)		1,079	1,079
CRP Treated in Plan (ac)		0	0
Urban (ac)	5,385	1,170	6,555
Urban Treated in Plan (ac)		0	0
Woodland (ac)	5,385	2,093	7,478
Woodland Treated in Plan (ac)		10	10
Public Land (ac)		285	285
Public Land Treated in Plan (ac)		0	0
Other (ac)	2,243	35	2,278
Other Treated in Plan (ac)		0	0
Stream (mi)		69	69
Stream Treated in Plan (mi)		3	3

Figure 51:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 07140107

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	1058
Field Border (Ft.)	101,943	Terraces (Ft.)	507
Filter Strip (Ac.)	97	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	49	Critical Planting (Ac.)	3
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	36
Windbreak (Ft.)	700	Water/Sediment Basins (#)	2
waste Utilization (Ac.)	0	Wells Decomissioned (#)	3
Nutrient Management (Ac.)	369	CRP Acres	1238
CSP Acres	357	WRP Acres	791
WHIP Acres	0	EQIP Grd/surf Water Acres	41

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	36	25
Conservation Security Program	4	2
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	1	1

Lower Mississippi – Memphis Basin
(HUC 08010100)
Missouri Basin Name – Mississippi Mainstem Below Ohio River

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Lower Mississippi-Memphis portion, HUC 08010100, stretches along the east boundary of Mississippi, New Madrid, and Pemiscot counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway.

The World Resources Institute (WRI) brief, *Awakening the Dead Zone* (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources. Loss of aquatic, wetland and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped maintain water quality.

Generally, some 96% of the lower Mississippi River Valley floodplain has been cut off from the river primarily to serve agricultural purposes. In southeast Missouri an estimated 50,000 of the 2.5 million acres of forested floodplain remain and existing in very small patches. In addition to the floodplain itself, the Mississippi River tributaries enter the river throughout and create passages for fish to reach and exit the critical nursery floodplain habitat that maintains their populations. With the construction of the levee system, these rivers now enter the river through concrete gates. While some forested floodplain exists along the main river course outside the area protected by the levees (e.g., Donaldson Point Conservation Area and Seven Island Conservation Area), the New Madrid Floodway stands as the only backwater floodplain along the lower Mississippi. Most of this area is flooded approximately once every three years. As a result of its regime of floods the area contains a vast diversity of stream habitats including forested wetlands, swamps, flooded croplands, and critically important ephemeral wetland depressions that pond during late winter and spring.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #3152 Mississippi River
  Impaired by chlordane and PCBs
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0001-1707-3152-mississippi-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0001-1707-3152-miss-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 52:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08010100

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	22,405	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	547	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	516
CSP Acres	0	WRP Acres	112
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	4	3
Conservation Security Program	1	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	1	1

New Madrid-St. John's Basin
(HUC 08020201)
Missouri Basin Name – St. John's Bayou

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The New Madrid-St. John's Basin, HUC 08020201, occupies portions of Scott, Mississippi, and New Madrid counties. The majority of the streams in this basin are channelized. St. John's Ditch and several other tributaries flow into St. John's Bayou. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway.

Generally some 96% of the lower Mississippi River Valley floodplain has been cut off from the river primarily to serve agricultural purposes. Main nonpoint source impairments come from sediment, nutrients and pesticides from agricultural sources as well as problems associated with channelization. Meanwhile, in southeast Missouri only 50,000 of the 2.5 million acres of forested floodplain remain and these in only very small patches. In addition to the floodplain itself, throughout the Mississippi River tributaries enter the river and create passages for fish to reach and exit the critical nursery floodplain habitat that maintains their populations. With the construction of the levee system, these rivers now enter the river through concrete gates.

While some forested floodplain exists along the main river course outside the area protected by the levees (e.g., Donaldson Point Conservation Area and Seven Island Conservation Area), the New Madrid Floodway stands as the only backwater floodplain along the lower Mississippi. Most of this area is flooded approximately once every three years. As a result of its regime of floods the area contains a vast diversity of stream habitats including forested wetlands, swamps, flooded croplands and critically important ephemeral wetland depressions that pond during late winter and spring.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

  #3134 Spillway Ditch
  Impaired by sediment.
  TMDL approved by EPA on November 22, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/spillway_ditch_tmdl_112206.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #3151 Swift Ditch
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Stations*** - 1
- ***Groundwater-Level Observation Well Network*** – East Prairie (Mississippi County), Sikeston (Scott County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** –
  - North Cut (SN021)

Figure 53: AgNPS SALT Project Plan Goals for HUC 08020201

Watershed Name	North Cut
Project #	SN021
Watershed Size (ac)	65,065
Cropland (ac)	59,021
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	2,292
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	560
Urban Treated in Plan (ac)	
Woodland (ac)	2,402
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	89
Other Treated in Plan (ac)	
Stream (mi)	
Stream Treated in Plan (mi)	

Figure 54:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08020201

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	491,188	Terraces (Ft.)	0
Filter Strip (Ac.)	28	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	48	Critical Planting (Ac.)	16
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	64
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	374	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	1874	CRP Acres	1746
CSP Acres	7153	WRP Acres	1680
WHIP Acres	0	EQIP Grd/surf Water Acres	8953

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	6	4
Conservation Security Program	42	32
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	2	14
EQIP Ground/Surface water plans	1	1

Upper St. Francis River Basin
(HUC 08020202)
Missouri Basin Name – Upper St. Francis Basin

The Upper St. Francis Basin, HUC 08020202, lies in portions of Iron, St. Francois, Madison, Ste. Genevieve, Butler, Reynolds, Washington, and Wayne counties. The St. Francis River originates in Iron County in southeast Missouri and flows 225 miles to the Missouri/Arkansas border. The basin drains 1,839 square miles in Missouri. The Upper St. Francis Basin is located above Wappapello Dam and the Lower St. Francis Basin below Wappapello Dam. Six dams are located in the upper basin, which can affect flows and fish movement. These include Wappapello Dam and Lake (8,400 acres) and the dam at DiSalvo Lake on the mainstem and four dams located on mainstem tributaries.

This basin is 77% woodland, 10% grassland, 7% cropland, and 6% other land uses, which includes industrial, urban, and water developments. The basin is mostly rural. The communities of Farmington, Fredericktown, and Ironton and the area surrounding Wappapello Lake are experiencing the greatest population growth. Uncontrolled sediment and stormwater runoff at construction sites pose localized nonpoint source pollution problems. Other nonpoint source pollution problems include runoff from mine tailing piles and nutrient enrichment from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

#2916 Big Creek
Impaired by metals.
TMDL approved by EPA on February 17, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2916-big-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2916-big-ck-info.pdf

#2860 Goose Creek
Impaired by nickel and cobalt
TMDL approved by EPA on December 1, 1999.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2860-goose-2859-saline-cks-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2860-goose-2859-saline-ck-info.pdf

#2860 Saline Creek
Impaired by nickel and cobalt
TMDL approved by EPA on December 1, 1999.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2860-goose-2859-saline-cks-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2860-goose-2859-saline-ck-info.pdf

#2190 Saline Creek
Impaired by BOD and ammonia nitrogen
TMDL approved by EPA on January 12, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2190-saline-ron-rog-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2190-saline-ck-ron-rog-info.pdf

#2835 St. Francis River
Impaired by BOD and ammonia nitrogen.
TMDL approved by EPA on February 1, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2835-st-francis-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2835-st-francis-r-info.pdf
#2850 Trace Creek
Impaired by pH from natural sources
TMDL approved by EPA on November 15, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2850-trace-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2850-trace-ck-info.pdf
#2864 Village Creek
Impaired by NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2864-village-ck-info.pdf

- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  - ***City of Fredericktown*** *(PWSSID # 4010290)*
    Fredericktown City Lake
  - ***S-F Scout Ranch (NC)*** *(PWSSID # 4240120) – pending issue*
    Surface Water

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 6
- ***Groundwater-Level Observation Well Network*** – Farmington (St. Francois County), Fredericktown (Madison County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Little St. Francis River,
  - Mill Creek,
  - Saline Creek, and
  - Tollar Branch.

Figure 55: Number of Volunteer Water Quality Sampling Events Conducted in 08020202 Upper St. Francis River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	4	4	4
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 56:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08020202

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	1
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	2	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	109	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	374	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	0	CRP Acres	56
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	1	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Lower St. Francis River Basin
(HUC 08020203)
Missouri Basin Name – Lower St. Francis Basin

The Lower St. Francis Basin, HUC 08020203, lies in portions of Bollinger, Wayne, Stoddard, Butler and Dunklin counties. The St. Francis River originates in Iron County in southeast Missouri and flows 225 miles to the Missouri/Arkansas border. The basin drains 1,839 square miles in Missouri. The Upper St. Francis Basin is located above Wappapello Dam and the Lower St. Francis Basin below Wappapello Dam. Drainage in the lower basin has been altered by a system of levees and drainage ditches. Most of the west bank of the lower St. Francis River is a levee, which prevents drainage into the river from the west. Flow in the lower sub-basin is primarily regulated by water released through Wappapello Dam. However, extensive infiltration produces a good aquifer with abundant groundwater supplies.

Nonpoint source water pollution is mainly associated with headcutting, streambank erosion, and the resulting increased sediment load and deposition downstream which adversely affects water quality. Nutrient enrichment from cropland in many of the smaller tributary ditches can cause turbidity, excessive growth of aquatic plants, and low dissolved oxygen concentrations during summer low flow periods. Pesticide residues are present in surface and shallow groundwater supplies throughout the basin. Irrigation is a major use of groundwater. The majority of the land use in the basin is for crops with 90% of the basin being used for cropland and pasture.

Watershed Efforts and Ongoing Activities

Watershed Planning
- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring
- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects
- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** – none

Figure 57:
(This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/)

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08020203

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	12,620	Terraces (Ft.)	0
Filter Strip (Ac.)	4	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	2
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	12
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	39	CRP Acres	151
CSP Acres	14746	WRP Acres	294
WHIP Acres	0	EQIP Grd/surf Water Acres	112

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	7	5
Conservation Security Program	9	14
Wetland Reserve Program	5	2
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	1	1

Little River Ditches Basin
(HUC 08020204)
Missouri Basin Name – Little River Ditches Basin

The Little River Ditches Basin, HUC 08020204, flows through seven counties in Missouri, Bollinger, Cape Girardeau, Scott, Stoddard, New Madrid, Pemiscot, and Dunklin to the Missouri-Arkansas border. Drainage in the basin has been altered by a system of levees and drainage ditches. Irrigation is a major use of ground water. Wetland drainage, timber clearing, and flood control projects have converted the basin from an immense swampland forest to a vast agricultural area. Approximately 90% of the basin is cropland, 7% woodland, and 3% other.

Excessive streambank erosion and headcutting are serious problems in the channelized section of the lower sub-basin mainstem and most of its tributaries. The quality of the riparian corridor varies considerably. The streambed is primarily composed of clay and sand, with very little diversity. Excessive sedimentation is occurring below the channelized sections. The main nonpoint source pollutants are sediment and nutrients from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL -***

  #3118 Buffalo Ditch
  Impaired by BOD (low DO).
  Information Sheet -not available

  #3050 Ditch #1
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #3105 Lateral #2 Main Ditch
  Impaired by sediment.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #3041 Old Channel Little River
  Impaired by sediment.
  TMDL approved by EPA on November 1, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/old_channel_little_river_final_110106.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – Malden (Dunklin County), Delta (Cape Girardeau County), Duck Creek (Bollinger County), Steele (Pemiscot County)

  Stream Teams - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** -
  - Pemiscot Bayou (SN024)
  - Jenkins Basin (SN028)
  - Dexter Creek (SN080)

Figure 58: AgNPS SALT Project Plan Goals for HUC 08020204

Watershed Name	Pemiscot Bayou	Jenkins Basin	Dexter Creek	Total
Project #	SN024	SN028	SN080	
Watershed Size (ac)	46,490	46,195	31,101	123,786
Cropland (ac)	41,795	33,674	20,004	95,473
Cropland Treated in Plan (ac)			9,000	9,000
Pasture/Hayland (ac)	2,941	7,096	1,745	11,782
Pasture/Hayland Treated in Plan (ac)			80	80
CRP Land (ac)			82	82
CRP Treated in Plan (ac)			0	0
Urban (ac)		231	2,345	2,576
Urban Treated in Plan (ac)			0	0
Woodland (ac)	789	5,041	5,030	10,860
Woodland Treated in Plan (ac)			0	0
Public Land (ac)			732	732
Public Land Treated in Plan (ac)			0	0
Other (ac)	965	153	1,163	2,281
Other Treated in Plan (ac)			0	0
Stream (mi)			48	48
Stream Treated in Plan (mi)			7	7

Figure 59:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08020204

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	191,199	Terraces (Ft.)	0
Filter Strip (Ac.)	13	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	6
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	87
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	1107	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	6135	CRP Acres	1765
CSP Acres	33467	WRP Acres	613
WHIP Acres	0	EQIP Grd/surf Water Acres	6074

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	28	23
Conservation Security Program	84	69
Wetland Reserve Program	8	9
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	29	28

Cache River Basin
(HUC 08020302)
Missouri Basin Name – Cache River Basin

The Cache River Basin, HUC 08020302, has a small portion that lies in Butler County, Missouri, with the majority of the basin located in Arkansas. The total area of the watershed is approximately 2,000 square miles.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** – Qulin (Butler County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - *none*

Figure 60:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 08020302

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	3
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	82

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	2

Keg-Weeping Water Basin
(HUC 10240001)
Missouri Basin Name – Missouri River Bottom

The Keg-Weeping Water Basin, HUC 10240001, has only 6,498.2 acres (10.2 square miles) in Atchison County, Missouri, which is in the most northwest corner of the state. The basin extends into Harrison, Mills, Pottawattamie, Fremont, and Shelby counties in Iowa and Cass, Nemaha, and Otoe counties in Nebraska. The Missouri River provides the boundary for the western edge of the basin in Missouri. There are no classified streams in the Missouri portion of the basin. Land use is rural.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #0226 Missouri River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 61:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240001

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	5	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	5
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	5
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	1	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Nishnabotna River Basin
(HUC 10240004)
Missouri Basin Name – Nishnabotna River Basin

The Nishnabotna River Basin, HUC 10240004, has 44,994 acres in Atchison County, Missouri. The basin extends into Fremont County, Iowa and Nemaha County in Nebraska. The Missouri River provides the boundary for the western edge of the basin in Missouri. The Nishnabotna River flows into Missouri from Iowa. High Creek and its tributaries flow in a westerly direction until they meet the Nishnabtna which then flows to the Missouri River. Greys Lake is the largest lake in the basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Source Water Protection Plans*** - none
- ***Watershed Groups Formed*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** – none

Figure 62:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240004

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	2	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	243
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	4	5
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Tarkio-Wolf River Basin
(HUC 10240005)
Missouri Basin Name – Tarkio-Squaw Tributaries Basin

The Tarkio-Wolf River Basin, HUC 10240005, covers 543,144 acres (848.7 square miles) in Atchison, Holt, Andrew, and Nodaway counties. The Tarkio River, and Middle and West Tarkio creeks flow into Missouri from Iowa. The Tarkio River and all streams in the watershed flow in a southerly direction and empty into the Missouri River. Little Tarkio, Squaw, Kimsey, Mill, Rock Creek, and Old Chain Nishnabotna are the main creeks in the watershed. Big Lake in Holt County is the only significant impoundment. The watershed is mostly rural. Nonpoint source impacts from agricultural runoff and channelization contribute to sediment loading from fields and streambanks. Channelization also results in degraded riparian habitat in the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

  #0248 Little Tarkio Creek
  Impaired by sediment.
  TMDL approved by EPA on October 13, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/little_tarkio_crk_final_tmdl101306.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #0226 Missouri River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -***http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

  City of Mound City *(PWSSID # 1010548)*
  Groundwater

  City of Oregon *(PWSSID # 1010605)*
  Groundwater

  City of Craig *(PWSSID # 101091) – pending issue*
  Groundwater

  City of Fairfax *(PWSSID # 1010265) – pending issue*

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - East Fork Tarkio Creek

Figure 63: Number of Volunteer Water Quality Sampling Events Conducted in 10240005 Tarkio-Wolf Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** -

Figure 64:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240005

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	87,325	Terraces (Ft.)	21,800
Filter Strip (Ac.)	85	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	195	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	56
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	1
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	5232	CRP Acres	1760
CSP Acres	0	WRP Acres	0
WHIP Acres	9	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	52	47
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

Nodaway River Basin
(HUC 10240010)
Missouri Basin Name – Nodaway River Basin

The Nodaway River watershed (basin), HUC 10240010, lies within Iowa and Missouri. The upper two-thirds of the Nodaway River basin lies in southern Iowa and the lower one-third of the basin in northwestern Missouri. In Missouri, the Nodaway River flows almost due south to its confluence with the Missouri River about 12 miles northwest of St. Joseph. The Missouri portion of the basin has an area of 567 square miles in Nodaway, Holt, Atchison, and Andrew counties. The major tributaries include Clear, Elkhorn, and Mill creeks. The largest reservoir in the basin is Bilby Ranch Lake with a surface area of 110 acres. There are no public drinking water reservoirs in this basin. Most water movement in the basin is through the surface stream network. There are eight small springs of note in the basin, only one of which, Hazlett Spring, produces more than ten gallons per minute. The land is a mixture of hills and plains. Sixty-five percent of the land is row crop, 28 percent is pasture and hay fields and 6 percent forest.

In the Nodaway River basin, the most serious nonpoint source problem is degradation of aquatic habitat in 178 miles (100 percent) of the classified streams because of the prevalence of highly erosive loess soils, large amounts of row crop agriculture, removal of riparian vegetation and channelization of streams. Channelization has occurred in 42.5 miles (24 percent) of streams in the basin. Storm water runoff carries significant amounts of fertilizers, animal wastes, and pesticides into streams. There were seven nonpoint source watershed projects in the basin during the 1990's, which treated over 15,800 acres of land, comprising about four percent of the entire basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** **-** none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection*** **Plans** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** **–** 1
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
    - Hagey Creek (Branch)

Figure 65: Number of Volunteer Water Quality Sampling Events Conducted in 10240010 Nodaway Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** – none

Figure 66: NRCS and Partner Contributions: HUC 10240010
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

HUC 8 - 10240010

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	6304
Field Border (Ft.)	61,020	Terraces (Ft.)	152,598
Filter Strip (Ac.)	38	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	4	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	38
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	8
Windbreak (Ft.)	0	Water/Sediment Basins (#)	9
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	1302	CRP Acres	321
CSP Acres	0	WRP Acres	0
WHIP Acres	9	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	31	15
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Independence-Sugar Basin
(HUC 10240011)
Missouri Basin Name – Missouri River Bottom

The Independence-Sugar Basin, HUC 10240011, covers the western portions of Andrew, Buchanan, Platte, Jackson, and Clay counties with the remainder of the watershed being in Kansas. The Missouri River follows the western edge of the basin in Missouri. There are several small lakes in the watershed. The watershed contains the urban areas of Savannah, St. Joseph and part of Kansas City. Nonpoint source pollution from urban runoff is a primary concern in these areas.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Brush Creek Mid-shed – nine-element plan through G03-NPS-06
- ***TMDL***-

  #0226 Missouri River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf

  #7071 Weatherby Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Source Water Protection Plans*** –
  - ***City of Weston*** *(PWSSID # 1010851) – pending issue*
- ***Watershed Groups Formed*** -
  - Brush Creek Steering Committee
  - Brush Creek Technical Advisory Committee for Water Quality
  - Brush Creek Cost Share Program Committee
  - Brush Creek Outreach/Education Advisory Committee

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – St. Joseph and Lewis and Clark State Park (Buchanan County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Brush Creek,
  - Unnamed Tributary to Missouri River (Black Snack), and
  - White Aloe Branch.

Figure 67: Number of Volunteer Water Quality Sampling Events Conducted in 10240011 Independence – Sugar Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	5	18	5
2	2	3	3
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Brush Creek Mid-Shed (G03-NPS-06)
- ***AgNPS SALT Project*** - none

Figure 68:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240011

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	3119
Field Border (Ft.)	0	Terraces (Ft.)	141,920
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	9	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	6
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	4
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	6132	CRP Acres	384
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	19	4
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	0
EQIP Ground/Surface water plans	0	0

Platte River Basin
(HUC 10240012)
Missouri Basin Name – Platte River Basin

The Platte River watershed (basin), HUC 10240012, originates near Spaulding, Iowa, in the southwestern portion of that state, and enters Missouri near the town of Sheridan, Missouri. Portions of nine counties are included in the watershed including Andrew, Buchanan, Worth, Platte, Dekalb, Gentry, Nodaway, Clay, and Clinton. The Platte River is a low gradient, eighth order river which flows southward for about 200 miles through northwest Missouri, and drains into the Missouri River near Farley, Missouri. The 102 River is the largest tributary of the Platte River, while smaller tributaries include Honey Creek, Long Branch, Third Fork Platte River, Little Third Fork Platte River, Castile Creek, and Little Platte River. Streams within the basin are typical of prairie type, with turbid water and generally homogeneous substrate consisting of silt and sand. The high erosion and deposition rates within the basin have created major water quality concerns and have resulted in filling riffle and pool habitats, as well as widening of stream channels.

Nonpoint source pollution caused by channelization, intensive row cropping, and livestock have had the greatest negative influence upon water quality in the watershed. Water quality concerns are low dissolved oxygen, high levels of turbidity, and organic nutrients. Row cropping and grazing of pastureland dominates the land use within the basin, although urban construction and runoff are problematic in the Kansas City and St. Joseph areas. The Platte River, 102 River, and Little Platte River, including Smithville Lake are also classified for drinking water use and irrigation.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9–element plan for Smithville Lake HUC 10240012110
    Status - being implemented through G03-NPS-12
- ***TMDL*** -

#3326 Rocky Branch
Impaired by BOD.
Permit-in-lieu of TMDL approved by EPA on July 20, 2006.
PIL (not available online)
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0048305.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3326-rocky-br-kc-info.pdf

#7077 Smithville Reservoir
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7077-smithville-lk-info.pdf

#0327 Third Fork Platte River
Impaired by sediment.
TMDL approved by EPA on November 15, 2006.
TMDL http://www.epa.gov/region07/water/pdf/third_fork_platte_final_tmdl_111506.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

- ***Watershed Groups Formed*** – Smithville Lake Watershed Coalition (SLWC)
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Smithville *(PWSSID # 1010748)*
  Smithville Reservoir
  Smithville City Lake

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 5
- ***Groundwater-Level Observation Well Network*** – Sheridan (Worth County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Honey Creek, and
  - Long Branch.

Figure 69: Number of Volunteer Water Quality Sampling Events Conducted in 10240012 Platte River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	6	6	6
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Stewardship Implementation Project (G02-NPS-15)
  - Brush Creek Mid-Shed (G03-NPS-06)
  - Cameron School Water Festival (G06-NPS-12)
- ***AgNPS SALT Project*** -
  - Little Third Fork (SN058)

Figure 70: AgNPS SALT Project Plan Goals for HUC 10240012

Watershed Name	Little Third Fork
Project #	SN058
Watershed Size (ac)	50,963
Cropland (ac)	18,377
Cropland Treated in Plan (ac)	9,000
Pasture/Hayland (ac)	13,724
Pasture/Hayland Treated in Plan (ac)	2,000
CRP Land (ac)	8,753
CRP Treated in Plan (ac)	200
Urban (ac)	235
Urban Treated in Plan (ac)	0
Woodland (ac)	8,378
Woodland Treated in Plan (ac)	250
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	1,496
Other Treated in Plan (ac)	0
Stream (mi)	32
Stream Treated in Plan (mi)	9

Figure 71:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240012

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	8266
Field Border (Ft.)	0	Terraces (Ft.)	678,086
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	20	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	10
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	9
Windbreak (Ft.)	0	Water/Sediment Basins (#)	10
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	11549	CRP Acres	1824
CSP Acres	3338	WRP Acres	0
WHIP Acres	8	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	35	18
Conservation Security Program	26	6
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	1
EQIP Ground/Surface water plans	0	0

Figure 72. Public Drinking Water Branch CREP Grant for HUC 10240012.

PWS	Lake Name	Grant Accepted	AWARD $	ACRES (CRP1)	old crop acres	% enrolled	# of contracts
Plattsburg	Smithville Res.	06-Jun-03	$335,588.00				
Smithville	Smithville Res.	30-Oct-01	$500,000.00	6846.4	37602.30	18.21%	127

Figure 73:

Summary of FY06 319 NPS Project Evaluation Measures

Platte

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**1**	**1**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**2**	**280**	**0**	**0**	**0**	**0**	**0**	**0**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(Best Management Practices)							

One Hundred and Two River Basin
(HUC 10240013)
Missouri Basin Name – 102 River Basin

The One Hundred and Two River Basin, HUC 10240013, has its upstream portion in southern Iowa. The river flows almost due south to its confluence with the Platte River just north of St. Joseph. The Missouri portion of the basin has an area of 386 square miles and includes portions of Nodaway, Buchanan, and Andrew counties. The two largest tributaries are Mozingo and White Cloud creeks. The largest reservoir in the basin is Mozingo Reservoir with a surface area of 1,000 acres.

The basin is a mixture of hills and plains. Land use is 52% row crop, 39% grassland, 7% forest and 1% urban. Most water movement in the basin is through the surface stream network.

The most serious nonpoint problem is degradation of aquatic habitat. A total of 110 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 44 miles (40 percent) of streams in the basin. Mozingo Lake, the main water supply for Maryville is the only public water supply reservoir in the basin. Pesticide monitoring of this lake began in 2002 and at present there is inadequate data to estimate an average atrazine level in the lake.

Watershed Efforts and Ongoing Activities

Watershed Planning
- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring
- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects
- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 74:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10240013

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	875
Field Border (Ft.)	0	Terraces (Ft.)	171,544
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	2	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	10
Windbreak (Ft.)	0	Water/Sediment Basins (#)	5
waste Utilization (Ac.)	166	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	637	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	15	0
Conservation Security Program	1	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Lower Kansas River Basin
(HUC 10270104)
Missouri Basin Name – Kansas River Basin

The Lower Kansas River basin, HUC 10270104, is a small segment (4,576 acres) of a very large watershed that is located almost entirely in Kansas. The portion of the watershed in Missouri is in Jackson County and completely within the urban area of Kansas City. It has no classified waters within in the Missouri portion of the watershed. Potential sources of nonpoint pollution come from stormwater runoff from urban sources.

Watershed Efforts and Ongoing Activities

Watershed Planning:

- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Stations*** - 0
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - None

Figure 75:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10270104

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Upper Grand River Basin
(HUC 10280101)
Missouri Basin Name – Upper Grand River Basin

The Upper Grand River Basin, HUC 10280101, has its most upstream portions in southern Iowa. The East, Middle and West forks meet just south of Albany, Missouri, and form the Grand River. The upper portion of the basin within Missouri extends from the Iowa state line to the confluence with Shoal Creek near Chillicothe. The Missouri portion of the basin has an area of 2,811 square miles and includes portions of Livingston, Harrison, Nodaway, Worth, Caldwell, Clinton, Andrew, Carroll, Daviess, Dekalb, Ray, Gentry, and Grundy counties. The major tributaries include the East, Middle, and West forks of the Grand and Big, Lost, and Shoal creeks. The largest reservoir in the basin is Lake Viking with a surface area of 550 acres. Reservoirs are an important source of drinking water in this portion of the state. There are 18 reservoirs that serve as public drinking water supply sources in this basin.

The basin is a mixture of hills and plains with 53% grasslands, 33% row crop, and 14% forest. Most water movement in the basin is through the surface stream network. There are 19 small springs of note in basin, none of which sustain flow during dry weather. The most serious nonpoint source pollution problem in the basin is degradation of aquatic habitat. A total of 859 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 138 miles (16%) of streams in the basin. Proper animal waste management is especially important in this basin due to the presence of several large hog farms that land apply large amounts of liquid hog manure. There are 18 reservoirs in the Upper Grand River basin that serve as drinking water supplies and none of those tested exceeds the standards for atrazine, an agricultural herbicide.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Maysville Water Resources Plan
    http://www.mowin.org/Training/WQMP/pdf/Maysville.pdf
- ***TMDL*** -

#7109 Bethany Reservoir
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#0436 Big Muddy Creek
Impaired by sediment.
TMDL approved by EPA on October 13, 2006.
TMDL http://www.epa.gov/region07/water/pdf/big_muddy_crk_final_tmdl101306.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

#0510 Dog Creek
Impaired by NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0510-dog-ck-info.pdf

#7384 Grindstone Reservoir
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#0442 Hickory Creek
Impairment unknown.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

#7105 Jamesport City Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
#0468 Middle Fork Grand River
Impaired by sediment.
TMDL approved by EPA on November 15, 2006.
TMDL http://www.epa.gov/region07/water/pdf/mid_fk_grnd_river_final_tmdl_111506.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
#7453 Wallace State Park Lake
Impaired by fecal coliform.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7453-wallacesp-lk-info.pdf

- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

City of Bethany *(PWSSID # 1010068)*
Bethany Reservoir #1
Bethany Reservoir #2
Harrison County Lake

City of Breckenridge *(PWSSID # 1010099)*
Breckenridge Lake Intake

City of Hamilton (PWSSID # 1010342)
Hamilton Lake
Marrowbone Creek

Harrison County PDWS #1 (PWSSID # 1024241)
Eagleville Lake
Storage Basin

City of Maysville (PWSSID # 1010510)
Maysville West Lake
Maysville South Lake
Maysville Willowbrook Lake

City of City of Cameron (PWSSID # 1010131)
Cameron Reservoir #3
Grindstone Reservoir

City of Braymer (PWSSID #1010098) – pending issue
Groundwater

City of Kingston ((PWSSID # 1010426)
Groundwater

- ***Watershed Groups Formed*** -
  - Maysville Water Coalition

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 5
- ***Groundwater-Level Observation Well Network*** – Jameson and Coffey (Daviess County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Grand River, and
  - East Fork Grand River.

Figure 76: Number of Volunteer Water Quality Sampling Events Conducted in 10280101 Upper Grand River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	0	0	0
3	3	4	4
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Chillicothe Middle School Water Quality Project (G05-NPS-08)
- ***AgNPS SALT Project –***
  - Mudd Creek (SN043)
  - Hickory Creek (SN045)
  - West Fork of Big Creek (SN046)
  - Shoal Creek (Caldwell Co.) (SN070)

Figure 77: AgNPS SALT Project Plan Goals for HUC 10280101

Watershed Name	Mudd Creek	Hickory Creek	West Fork of Big Creek	Shoal Creek	Total
Project #	SN043	SN045	SN046	SN070	
Watershed Size (ac)	41,499	17,037	81,722	40,312	180,570
Cropland (ac)	15,069	7,245	10,269	20,939	53,522
Cropland Treated in Plan (ac)	10,064	4,320	4,000	8,794	27,178
Pasture/Hayland (ac)	13,807	600	18,851	2,188	35,446
Pasture/Hayland Treated in Plan (ac)	9,319	480	7,200	1,395	18,394
CRP Land (ac)	7,437	6,547	4,684	6,541	25,209
CRP Treated in Plan (ac)	0	360	0	0	360
Urban (ac)	772	10	300	632	1,714
Urban Treated in Plan (ac)	0	0	0	0	0
Woodland (ac)	3,961	2,631	7,690	8,730	23,012
Woodland Treated in Plan (ac)	1,980	240	1,200	1,419	4,839
Public Land (ac)	0	0	0	0	0
Public Land Treated in Plan (ac)	0	0	0	0	0
Other (ac)	453	4	0	1,282	1,739
Other Treated in Plan (ac)	0	0	0	0	0
Stream (mi)	28	19	29	104	180
Stream Treated in Plan (mi)	28	5	8	12	53

Figure 78:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280101

Contour buffer Strips (Ac.)	3	Diversion (Ft.)	341
Field Border (Ft.)	111,445	Terraces (Ft.)	428,079
Filter Strip (Ac.)	164	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	15	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	32	Critical Planting (Ac.)	151
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	122
Windbreak (Ft.)	850	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	68	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	3851	CRP Acres	10232
CSP Acres	243	WRP Acres	382
WHIP Acres	56	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	3
Conservation Reserve Program	242	125
Conservation Security Program	3	2
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	2	4
EQIP Ground/Surface water plans	0	0

Figure 79: Public Water Supply, CREP Acres

PWS	Lake Name (acres)	Grant Accepted	AWARD $	ACRES (CRP1)	old crop acres	% enrolled	# of contracts
Bethany	County Lake (91.8), City Lake (57.1)	31-Dec-03	$15,905.06	148.9	2942.7	5.06%	3
Breckenridge	Breckenridge Reservoir	awarded 03/13/03, not yet accepted	$9,067.80	0	135.4	0.00%	
Cameron	Cameron Reservoir (3.3), Grindstone Reservoir (1119.9)	04-Sep-01	$61,095.14	663.9	7887.00	8.42%	13
Hamilton	Hamilton Reservoir	30-Nov-01	$26,950.94	115.1	646.90	17.79%	4
Harrison #1	Eagleville Lake	24-Mar-03	$1,642.25	15.7	939.20	1.67%	2
Maysville	Willowbrook Lake (126.1), West Lake (52.8)	23-Jan-03	$19,738.39	163.5	1489.90	10.97%	4

Thompson River Basin
(HUC 10280102)
Missouri Basin Name – Thompson River Basin

The Thompson River Basin, HUC 10280102, originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Grand River near Chillicothe, Missouri. The Missouri portion of the basin has an area of 1,105 square miles and includes portions of Grundy, Mercer, Harrison, Daviess, and Livingston counties. The major tributaries include the Weldon River and Muddy, Honey and No creeks. The largest reservoir in the basin is Lake Paho with a surface area of 273 acres. Mercer Reservoir and Ridgeway Lake serve as public drinking water supply sources.

The Thompson River basin is a mixture of hills and plains. Land use is 53% grasslands, 31% row crop and 15% forest. Most water movement in the basin is through the surface stream network. There are only two small spring of note in basin and these probably cease flowing in dry weather. The most serious nonpoint source problem is degradation of aquatic habitat. A total of 383 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 125 miles (33%) of streams in the basin. Storm water runoff carries significant amounts of fertilizers, animal wastes, and pesticides into streams. Studies of water quality of private wells in northern and western Missouri show that about one third of wells exceed the drinking water standard for nitrate. Local land use practices or surface contamination of the wellhead often causes this pollution. During warm weather when stream flows are low, livestock tend to gather in and around streams. The wastes they leave in the water contributes to nuisance algae growths, low levels of dissolved oxygen and elevated levels of ammonia and bacteria.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) for Raccoon Creek HUC 10280102090030

  Status - substantially implemented through G00-NPS-18
- ***TMDL -***

  #7135 Crowder State Park Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #0588 Hickory Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #0589 Hickory Creek Tributary
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #0554 Honey Creek
  Impaired by sediment.
  TMDL approved by EPA on November 5, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/honey_crk_final_111506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #0557 Muddy Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(Enter PWSSID)*
  City of Unionville (PWSSID # 2010804)
  Lake Thunderhead
  Unionville Reservoir
- ***Watershed Groups Formed*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Spickard (Grundy County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Sugar Creek.

Figure 80: Number of Volunteer Water Quality Sampling Events Conducted in 10280102 Thompson River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	0
2	1	1	1
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Chillicothe Middle School Water Quality Project (G05-NPS-08)
  - Hickory Creek Watershed Demonstration/Education Project (G06-NPS-14)
- ***AgNPS SALT Project -***
  - Honey Creek (SN033)
  - Hickory Creek (SN073)
  - Little Muddy Creek (SN076)

Figure 81: AgNPS SALT Project Plan Goals for HUC 10280102

Watershed Name	Honey Creek	Hickory Creek	Little Muddy Creek	Total
Project #	SN033	SN073	SN076	
Watershed Size (ac)	64,500	17,664	55,611	137,775
Cropland (ac)	34,200	6,955	6,925	48,080
Cropland Treated in Plan (ac)		1,565	2,410	3,975
Pasture/Hayland (ac)	21,500	3,085	19,470	44,055
Pasture/Hayland Treated in Plan (ac)		695	4,700	5,395
CRP Land (ac)		3,674	9,682	13,356
CRP Treated in Plan (ac)		0	0	0
Urban (ac)		0	235	235
Urban Treated in Plan (ac)		0	0	0
Woodland (ac)	7,300	2,489	7,900	17,689
Woodland Treated in Plan (ac)		0	100	100
Public Land (ac)		0	0	0
Public Land Treated in Plan (ac)		0	0	0
Other (ac)	1,500	1,461	1,385	4,346
Other Treated in Plan (ac)		0	0	0
Stream (mi)	27	19	36	82
Stream Treated in Plan (mi)		4	7	11

Figure 82:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280102

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	250
Field Border (Ft.)	34,617	Terraces (Ft.)	114,018
Filter Strip (Ac.)	30	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	18	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	14	Critical Planting (Ac.)	30
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	43
Windbreak (Ft.)	0	Water/Sediment Basins (#)	9
waste Utilization (Ac.)	0	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	2356	CRP Acres	2498
CSP Acres	0	WRP Acres	0
WHIP Acres	14	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	60	25
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Figure 83:

Summary of FY06 319 NPS Project Evaluation Measures

Thompson

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**1**	**2**	**0**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**0**	**0**	**1**	**13**	**0**	**0**	**1**	**125**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**2**	**285**	**5**	**541**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**3**	**10**	**0**	**332**	**0**	**0**	**0**		
(Best Management Practices)									

Lower Grand River Basin
(HUC 10280103)
Missouri Basin Name – Middle Grand River Basin

The Grand River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. Counties within this watershed include Putnam, Carroll, Chariton, Macon, Linn, Grundy, Livingston, Sullivan, and Mercer. The Lower Grand River basin, HUC 10280103, begins at the confluence of the Grand River and Shoal Creek near Chillicothe. The basin lies in north central Missouri. It has an area of 2,234 square miles, and encompasses all tributaries entering the Grand between Shoal Creek and the confluence with the Missouri River near Brunswick. The major tributaries include Medicine, Locust, and Yellow creeks. The largest reservoirs are Silver Lake (2,464 acres), Swan Lake (1,425 acres), and South Pool (1,151 acres). All three are shallow lakes that lie within the Swan Lake National Wildlife Refuge.

The Lower Grand River basin is a mixture of hills and plains. Land use is 53% grasslands, 32% row crop, and 14% forest. Most water movement in the basin is through the surface stream network. Two small springs are known and probably cease flowing in dry weather.

A total of 678 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 115 miles (17%) of streams in the basin. Nonpoint source pollution problems result from sedimentation due to channelization and lack of riparian corridor, nutrients from land application of animal waste, and nutrients and pesticides from crop production.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

  #0619 East Fork Medicine Creek
  Impaired by sediment.
  TMDL approved by EPA on November 22, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/e_fork_medicine_crk_tmdl_112206.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #0602 Long Branch Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #0612 West Fork Locust Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #0613 West Fork Locust Creek
  Impairment unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #0623 West Fork Medicine Creek (also known as Little Medicine Creek)
  Impaired by sediment.
  TMDL approved by EPA on October 13, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/little_medicine_crk_final_tmdl101306.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/habitat-info.pdf
- ***Watershed Groups Formed*** - none

- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Marceline *(PWSSID # 2010497)*
  Marceline Lake (New)
  Brunswick District Water System *(PWSSID # 2010109)*
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 6
- ***Groundwater-Level Observation Well Network*** – Fountain Grove Wildlife Area (Livingston County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Elmwood Branch

Figure 84: Number of Volunteer Water Quality Sampling Events Conducted in 10280103 Lower Grand River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	0
2	0	0	0
3	0	0	0
4	0	2	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Endocrine Modulators and Excess Nutrients in Little Medicine and West (G03-NPS-15)
  - Chillicothe Middle School Water Quality Project (G05-NPS-08)
- ***AgNPS SALT Project -***
  - Big Creek (SN071)

Figure 85: AgNPS SALT Project Plan Goals for HUC 10280103

Watershed Name	Big Creek
Project #	SN071
Watershed Size (ac)	47,889
Cropland (ac)	16,740
Cropland Treated in Plan (ac)	5,538
Pasture/Hayland (ac)	12,321
Pasture/Hayland Treated in Plan (ac)	1,850
CRP Land (ac)	9,025
CRP Treated in Plan (ac)	0
Urban (ac)	151
Urban Treated in Plan (ac)	0
Woodland (ac)	7,574
Woodland Treated in Plan (ac)	540
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	2,078
Other Treated in Plan (ac)	0
Stream (mi)	294
Stream Treated in Plan (mi)	20

Figure 86:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280103

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	600
Field Border (Ft.)	57,791	Terraces (Ft.)	383,214
Filter Strip (Ac.)	20	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	33	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	69	Critical Planting (Ac.)	85
Stream/Shore protection (Ft.)	880	Grade Stab. Structures (#)	69
Windbreak (Ft.)	0	Water/Sediment Basins (#)	22
waste Utilization (Ac.)	259	Wells Decomissioned (#)	3
Nutrient Management (Ac.)	1004	CRP Acres	7033
CSP Acres	0	WRP Acres	1602
WHIP Acres	25	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	1
Conservation Reserve Program	210	106
Conservation Security Program	0	0
Wetland Reserve Program	9	9
Wildlife Hab. Incentive Program	0	1
EQIP Ground/Surface water plans	0	0

Figure 87:

Summary of FY06 319 NPS Project Evaluation Measures

Lower Grand

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**21**	**30**	**0**	**0**	**0**	**0**	**1**	**20**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**6**	**7**	**42**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									

Upper Chariton River Basin
(HUC 10280201)
Missouri Basin Name – Upper Chariton River Basin

The Chariton River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. The watershed includes portions of Putnam, Adair, Sullivan, and Schuyler counties. The river flows through 2 basins, the Upper and Lower Chariton. The major tributaries in the Upper Chariton include Shoal and Blackbird creeks. The largest reservoirs in the Missouri portion of the basin are Lake Thunderhead (1,015 acres) near Unionville. Reservoirs supply much of the public drinking water in this basin. Atrazine is an agricultural herbicide used on corn and grain sorghum. The reservoirs in the basin that serve as drinking water supplies have average atrazine or cyanazine levels in excess of state or federal standards.

The land is a mixture of hills and plains with the northern portion of the basin having more hills and woods than any other portion of the plains region in Missouri. The main land use is for pasture and hayfields. The majority of classified streams in the basin are considered to have degraded aquatic habitat due to channelization and agriculture. The major nonpoint source concerns in the basin are sediment, nutrients and pesticides from agricultural activities. Abandoned coal mined lands in the Blackbird, Shoal, and Sandy creek watersheds have resulted in increased levels of dissolved minerals, primarily sulfate.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -

  #0653 Blackbird Creek
  Impaired by sediment.
  TMDL approved by EPA on June 27, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/blackbird_creek_finaltmdl062706.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #0652 Sandy Creek
  Impaired by unknown sources.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf

  #9005U Willow Branch
  Impaired by unknown sources.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Unionville (PWSSID # 2010804)
  Lake Thunderhead
  Unionville Reservoir

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - North Blackbird Creek, and
  - Hazel Creek.

Figure 88: Number of Volunteer Water Quality Sampling Events Conducted in 10280201 Upper Chariton River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	1
2	0	0	0
3	0	0	0
4	0	5	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Habitat for Community (G05-NPS-22)
- ***AgNPS SALT Project*** -
  - Blackbird Creek (SN035)

Figure 89: AgNPS SALT Project Plan Goals for HUC 10280201

Watershed Name	Blackbird Creek
Project #	SN035
Watershed Size (ac)	36,287
Cropland (ac)	2,537
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	13,021
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	1,344
Urban Treated in Plan (ac)	
Woodland (ac)	5,455
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	2,440
Other Treated in Plan (ac)	
Stream (mi)	27
Stream Treated in Plan (mi)	

Figure 90:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280201

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	39	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	6	Critical Planting (Ac.)	62
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	25
Windbreak (Ft.)	0	Water/Sediment Basins (#)	12
waste Utilization (Ac.)	277	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	321	CRP Acres	425
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	3
Conservation Reserve Program	34	12
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Lower Chariton River Basin
(HUC 10280202)
Missouri Basin Name – Lower Chariton River Basin

The Chariton River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. The Lower Chariton Basin, HUC 10280202, includes portions of seven counties, Putnam, Sullivan, Adair, Linn, Macon, Chariton and Randolph. The major tributaries include Brush and Mussel Fork creeks. The largest reservoir in the basin is Forest Lake in Thousand Hills State Park (573 acres). This reservoir and several smaller ones provide much of the drinking water in the basin. Atrazine is an agricultural herbicide used on corn and grain sorghum. The reservoirs in the basin that serve as drinking water supplies have average atrazine or cyanazine levels in excess of state or federal standards.

The basin is a mixture of hills and plains. The land use is mainly rural dominated by grasslands and row crops. The majority of classified streams in the basin are considered to have degraded aquatic habitat due to channelization and agriculture. The major nonpoint source concerns in the basin are sediment, nutrients and pesticides from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL -***
  #0674 Mussel Fork Creek
  Impaired by sediment.
  TMDL approved by EPA on September 25, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/mussel_fork_crk_approved_tmdl092506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Marceline (PWSSID # 2010497)
  Marceline Lake
  Mussel Fork Creek
  Forest Lake/Hazel Creek – pending - the group will follow up with a watershed plan

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – none
  Stream Teams - No water bodies were monitored between October 1, 2005 and September 30, 2006.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project –***
  - Mussel Fork Creek (SN056)

Figure 91: AgNPS SALT Project Plan Goals for HUC 10280202

Watershed Name	Mussel Fork Creek
Project #	SN056
Watershed Size (ac)	53,111
Cropland (ac)	14,290
Cropland Treated in Plan (ac)	6,000
Pasture/Hayland (ac)	26,220
Pasture/Hayland Treated in Plan (ac)	7,000
CRP Land (ac)	4,951
CRP Treated in Plan (ac)	0
Urban (ac)	1,100
Urban Treated in Plan (ac)	0
Woodland (ac)	5,200
Woodland Treated in Plan (ac)	700
Public Land (ac)	650
Public Land Treated in Plan (ac)	0
Other (ac)	700
Other Treated in Plan (ac)	0
Stream (mi)	58
Stream Treated in Plan (mi)	10

Figure 92:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280202

Contour buffer Strips (Ac.)	2	Diversion (Ft.)	0
Field Border (Ft.)	16,803	Terraces (Ft.)	102,415
Filter Strip (Ac.)	1	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	10	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	89
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	28
Windbreak (Ft.)	0	Water/Sediment Basins (#)	2
waste Utilization (Ac.)	81	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	300	CRP Acres	1578
CSP Acres	0	WRP Acres	654
WHIP Acres	109	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	45	31
Conservation Security Program	0	0
Wetland Reserve Program	5	6
Wildlife Hab. Incentive Program	0	1
EQIP Ground/Surface water plans	0	0

Figure 93. Public Drinking Water CREP Acres, HUC 10280202

PWS	Lake Name	Grant Accepted	AWARD $	ACRES (CRP1)	old crop acres	% enrolled	# of contracts
Marceline	Marceline Lake	21-Aug-02	$56,065.97	465.8	1380.00	33.75%	5

Little Chariton River Basin
(HUC 10280203)
Missouri Basin Name – Little Chariton River Basin

The Little Chariton River Basin, HUC 10280203, occupies portions of five counties, Howard, Chariton, Randolph, Macon and Adair. The classified portions of the East Fork of the Chariton River and Long Branch Creek originate in northern Macon County and flow in a southerly direction to form Long Branch Lake and Macon Lake. The East Fork of the Chariton flows out of these lakes and into Randolph County where it eventually flows in a southwesterly direction into Chariton County. The Middle Fork of the Chariton and Stinking Creek also begin in northern Macon County and flow southerly to form Thomas Hill Lake in Macon and Randolph counties. The Middle Fork of the Chariton flows out of the lake in a southwesterly direction into Chariton County where it converges with the East Fork to empty into the Little Chariton. The Old Chain Chariton, which flows from the Chariton River, joins the Little Chariton shortly before it empties into the Missouri River.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Long Branch Watershed Assessment and Management Plan
    http://www.mowin.org/Training/WQMP/pdf/Longbranch.pdf
- ***TMDL*** -

  #0690 Dark Creek
  Impaired by sulfate.
  TMDL approved by EPA on December 15, 2004.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0690-dark-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0690-dark-ck-info.pdf

  #7171 Long Branch Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #0686 Sugar Creek
  Impaired by low pH.
  TMDL approved by EPA on December 19, 2002.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0686-sugar-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0686-sugar-ck-info.pdf
- ***Watershed Groups Formed***-
  - Piper Creek Town Branch Watershed Committee
  - Long Branch Watershed Steering Committee
- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

  City of Macon (PWSSID # 2010487)
  Long Branch Lake

  City of Moberly (PWSSID #2010533 – pending issue)
  Surface Water

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** – 4
- ***Groundwater-Level Observation Well Network*** - none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Long Branch.

Figure 94: Number of Volunteer Water Quality Sampling Events Conducted in 10280203 Little Chariton River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Assessment and Reclamation of Acid Drainage from Abandoned Coal Mines (G03-NPS-08)
- ***AgNPS SALT Project*** -
  - Dark and Sugar Creeks (SN036)
  - Long Branch (SN049)
  - Little Chariton River (SN060)

Figure 95: AgNPS SALT Project Plan Goals for HUC 10280203

Watershed Name	Dark and Sugar Creeks	Long Branch	Little Chariton River	Total
Project #	SN036	SN049	SN060	
Watershed Size (ac)	44,467	63,775	26,616	134,858
Cropland (ac)	18,500	16,029	11,478	46,007
Cropland Treated in Plan (ac)		9,475	3,195	12,670
Pasture/Hayland (ac)	15,000	15,498	10,601	41,099
Pasture/Hayland Treated in Plan (ac)		3,210	700	3,910
CRP Land (ac)		9,525	1,136	10,661
CRP Treated in Plan (ac)		0	180	180
Urban (ac)	500	297	8	805
Urban Treated in Plan (ac)		0	0	0
Woodland (ac)	6,000	15,239	3,297	24,536
Woodland Treated in Plan (ac)		940	240	1,180
Public Land (ac)	467	7,187	0	7,654
Public Land Treated in Plan (ac)		0	0	0
Other (ac)	4,000	0	96	4,096
Other Treated in Plan (ac)		0	0	0
Stream (mi)	35	245	35	315
Stream Treated in Plan (mi)		19	10	29

Figure 96:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10280203

Contour buffer Strips (Ac.)	24	Diversion (Ft.)	1300
Field Border (Ft.)	50,725	Terraces (Ft.)	81,180
Filter Strip (Ac.)	9	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	28	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	46	Critical Planting (Ac.)	59
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	11
Windbreak (Ft.)	0	Water/Sediment Basins (#)	14
waste Utilization (Ac.)	0	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	194	CRP Acres	2582
CSP Acres	0	WRP Acres	109
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	26	46
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Figure 97: Public Drinking Water CREP Acres, HUC 10280203

PWS	Lake Name	Grant Accepted	AWARD $	ACRES (CRP1)	old crop acres	% enrolled	# of contracts
Macon	Longbranch Lake	11-Sep-01	$460,894.00	4380.3	23146.00	18.92%	65

Lower Marais des Cygnes
(HUC 10290102)
Missouri Basin Name – Marais des Cygnes Basin

The Lower Marais des Cygnes basin, HUC 10290102, covers 3,704 square miles; 13% of the basin is in Missouri with the remainder in Kansas. The basin lies in Bates County except for a very small portion in Cass County. Over 35% of the mainstem Marais des Cygnes River is channelized. On the average, the Marais des Cygnes exceeds bankful discharge eight times per year.

The major nonpoint source problems in the watershed result from unreclaimed strip mines, acid mine drainage, channelization, sedimentation, agricultural runoff, and low base flows. During low flows, the Marais des Cygnes River has exceeded secondary drinking water supply standards for sulfates. Contamination from abandoned and reclaimed coal mines is a major problem for several streams in this basin. Erosion, sedimentation, acid mine drainage, high sulfate concentrations and iron deposits have seriously degraded some streams. Walnut Creek appears to be the most impacted. Mulberry Creek, Park Branch, New Home Creek, Miami Creek, the Marais des Cygnes River and other tributaries also are affected.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9–element plan for Marais des Cygnes HUC 1029010203, and 04
    Status - developed through G05-NPS-05
  - Butler City Lake Watershed Management Plan
    http://www.mowin.org/Training/WQMP/pdf/butlerplan.pdf
- ***TMDL*** -

  #1299 Miami Creek
  Impaired by sediment.
  TMDL approved by EPA on November 15, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/miami_creek_final_tmdl_111506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #1300 Mound Branch
  Impaired by biochemical oxygen demand and ammonia nitrogen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1300-mound-br-info.pdf
- ***Watershed Groups Formed***- steering committee for
  - Marmaton, Marais des Cygnes, Little Osage Watershed Management Plan Committee
  - Citizen Watershed Committee (multi-counties)
  - Butler Lake Watershed Management Committee
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Butler (PWSSID # 1010118)
  Butler Lake
  Miami Creek
  Marais des Cygnes

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Bates SWCD Producer Workshops (G05-NPS-30)
  - Marmaton, Marais des Cygnes, Little Osage Watershed Management and Protection Plan (G05-NPS-05)
- ***AgNPS SALT Project –***
  - Lower Marais des Cygnes (SN069)

Figure 98: AgNPS SALT Project Plan Goals for HUC 10290102

Watershed Name	Lower Marais des Cygnes*
Project #	SN069
Watershed Size (ac)	36,749
Cropland (ac)	13,720
Cropland Treated in Plan (ac)	3,722
Pasture/Hayland (ac)	13,617
Pasture/Hayland Treated in Plan (ac)	1,945
CRP Land (ac)	750
CRP Treated in Plan (ac)	0
Urban (ac)	7
Urban Treated in Plan (ac)	0
Woodland (ac)	5,979
Woodland Treated in Plan (ac)	70
Public Land (ac)	279
Public Land Treated in Plan (ac)	0
Other (ac)	2,397
Other Treated in Plan (ac)	0
Stream (mi)	208
Stream Treated in Plan (mi)	10

* Same information for both HUCs (10290102 & 10290105). These numbers have not been divided out per HUC (i.e., duplicate numbers).

Figure 99:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290102

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	274
Field Border (Ft.)	28,555	Terraces (Ft.)	4,878
Filter Strip (Ac.)	17	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	9	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	102	Critical Planting (Ac.)	35
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	9
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	1504	CRP Acres	134
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	47	6
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Figure 100:

Summary of FY06 319 NPS Project Evaluation Measures

Lower Marais Des Cygnes

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**0**	**0**	**1**	**27**	**0**	**0**	**3**	**198**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									

Little Osage River Basin
(HUC 10290103)
Missouri Basin Name – Little Osage River Basin

The Little Osage River Basin, HUC 10290103, lies within Bates and Vernon counties. The Little Osage River flows from Kansas into Missouri in Vernon County where it continues in an easterly direction to join the Marmaton River. The basin is rural with the primary land use being agriculture. Row crops, pasture and hay production, and swine and cattle dominate the agricultural activities. On the average, the Little Osage River exceeds bank full discharge 2 times per year.

The main nonpoint source pollution problems are associated with agricultural and mining activities. These include nutrient enrichment and streambank degradation due to row crop and animal agriculture; inadequate riparian corridors, erosion and sedimentation caused by channelization; maintenance of already low base flows; and threats to base flows by watershed developments.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9–element plan for Little Osage HUC 10290103
    Status - developed through G05-NPS-05
- ***TMDL***
  #3652 Little Osage River
  Impaired by low dissolved oxygen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3652-little-osage-r-info.pdf
  #1308 Marmaton River
  Impaired by low dissolved oxygen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1308-marmaton-r-info.pdf
- ***Watershed Groups Formed*** -
  - Marmaton, Marais des Cygnes, Little Osage Rivers Watershed Planning Steering Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Marmaton, Marais des Cygnes, Little Osage Watershed Management and Protection Plan (G05-NPS-05)
  - Citizen Watershed Committee (multi-counties)
- ***AgNPS SALT Project*** - none

Figure 101:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290103

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	81,222	Terraces (Ft.)	18,561
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	5	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	5
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	57	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	106	CRP Acres	440
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	0
Conservation Reserve Program	15	9
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Marmaton River Basin
(HUC 10290104)
Missouri Basin Name – Marmaton River Basin

The Marmaton River Basin, HUC 10290104, lies within Vernon and Barton counties. The Marmaton River flows from Kansas into Missouri in Vernon County where it continues in an easterly direction, and then just before reaching the city of Nevada it turns northeasterly until the Little Osage River empties into it. It has two main tributaries, Drywood Creek and Little Drywood Creek, which originate in Barton County and flow north into the Marmaton.

The basin is rural with the primary land use being agriculture. Row crops, pasture and hay production and beef, swine and dairy cattle dominate the agricultural activities. The main nonpoint source pollution problems are associated with agricultural and mining activities. Stream problems in the basin include: water quality degradation due to cattle; inadequate riparian corridors, erosion and sedimentation caused by channelization and agricultural runoff; maintenance of already low base flows; threats to base flows by future watershed developments. The Marmaton River is highly mineralized, characterized by high specific conductance values and sulfate concentrations. The Marmaton River has exceeded total sulfate concentration standards for public drinking water supplies, irrigation, and livestock and wildlife watering.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9-element plan for Marmaton River HUC 10290104
    Status - developed through G05-NPS-05
- ***TMDL***
  #1308 Marmaton River
  Impaired by low dissolved oxygen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1308-marmaton-r-info.pdf
  #1319 Second Nicolson Creek
  Impaired by sulfate.
  TMDL approved by EPA on June 9, 2004.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1319-second-nicolson-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1319-second-nicholson-info.pdf
- ***Watershed Groups Formed*** –
  Marmaton, Marais des Cygnes, Little Osage River Management Plan Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Marmaton, Marais des Cygnes, Little Osage Watershed Management and Protection Plan (G05-NPS-05)
  - Citizen Watershed Committee (multi-counties)
  - Poultry Litter Fertility and Water Quality Demonstration Project (G05-NPS-23)

- ***AgNPS SALT Project –***
  - Lower Marmaton River (SN040)
  - Osage Plains (SN081)

Figure 102: AgNPS SALT Project Plan Goals for HUC 10290104

Watershed Name	Lower Marmaton River	Osage Plains	Total
Project #	SN040	SN082	
Watershed Size (ac)	35,706	44,821	80,527
Cropland (ac)	15,543	15,897	31,440
Cropland Treated in Plan (ac)		6,000	6,000
Pasture/Hayland (ac)	8,087	13,527	21,614
Pasture/Hayland Treated in Plan (ac)		2,000	2,000
CRP Land (ac)		1,473	1,473
CRP Treated in Plan (ac)		0	0
Urban (ac)	180	1,925	2,105
Urban Treated in Plan (ac)		0	0
Woodland (ac)	5,429	7,632	13,061
Woodland Treated in Plan (ac)		0	0
Public Land (ac)	150	799	949
Public Land Treated in Plan (ac)		0	0
Other (ac)	6,317	3,568	9,885
Other Treated in Plan (ac)		0	0
Stream (mi)	36	180	216
Stream Treated in Plan (mi)		4	4

Figure 103: NRCS and Partner Contributions: HUC 10290104
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	600
Field Border (Ft.)	171,393	Terraces (Ft.)	49,733
Filter Strip (Ac.)	21	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	59	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	58
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	2
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	126	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	729	CRP Acres	1273
CSP Acres	0	WRP Acres	331
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	50	43
Conservation Security Program	0	0
Wetland Reserve Program	2	2
Wildlife Hab. Incentive Program	2	0
EQIP Ground/Surface water plans	0	0

Harry S. Truman Reservoir
(HUC 10290105)
Missouri Basin Name – Upper Osage River Basin

The Harry S. Truman Reservoir, HUC 10290105, covers portions of Barton, Vernon, St. Clair, Cedar, Hickory, Benton, Bates, Polk, and Henry counties. The Osage River originates at the confluence of the Bates County Drainage Ditch and Marmaton River northwest of Schell City, Missouri, in northeast Vernon County then flows in an easterly direction and inundates Harry S. Truman Lake. Truman Dam impounded 98.5 miles of the Osage River in November 1979. Since the construction of Truman Dam, flooding has increased in the lower portions of streams within the flood pool of Truman Lake. Main tributaries include Clear, Panther, Mongaw, Gallinipper, Weaubleau, and Bear creeks.

Land use in the basin is primarily animal agriculture and forestland. Agriculture, coal strip mines, and sewage discharges are the major sources of water quality problems. Problems associated with agricultural runoff, livestock grazing in the watershed, and discharges from unregulated or faulty animal waste facilities include turbidity, sedimentation, low dissolved oxygen, high nitrogen and phosphorous concentrations, high ammonia, and high fecal coliform counts. Several areas in Clear Creek and the Monegaw are impacted heavily by mine drainage.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL-***

  #1336 Clear Creek (Vernon county)
  Impaired by sediment.
  TMDL approved by EPA on November 15, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/clear_creek_final_111506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

  #1308 Marmaton River
  Impaired by low dissolved oxygen.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1308-marmaton-r-info.pdf

  #1234 Monegaw Creek
  Impaired by sulfate.
  TMDL approved by EPA on August 17, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/monegaw_crk_mo081706.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1234-monegaw-ck-info.pdf

  #1339 Walnut Creek
  Impaired by BOD and VSS.
  Permit-in-lieu of TMDL approved by EPA on May 26, 2006.
  PIL http://www.dnr.mo.gov/env/wpp/tmdl/1339-walnut-ck-pil.pdf
  MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0040002.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1339-walnut-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – Osceola (St. Clair County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Polk County Regional Grazing School (G05-NPS-06)
  - Poultry Litter Fertility and Water Quality Demonstration (G05-NPS-23)
- ***AgNPS SALT Project -***
  - Weaubleau Creek (SN032)
  - Lower Marais des Cygnes (SN069)

Figure 104: AgNPS SALT Project Plan Goals for HUC 10290105

Watershed Name	Weaubleau Creek	Lower Marais des Cygnes*	Total
Project #	SN032	SN069	
Watershed Size (ac)	39,308	36,749	76,057
Cropland (ac)	5,898	13,720	19,618
Cropland Treated in Plan (ac)		3,722	3,722
Pasture/Hayland (ac)	22,609	13,617	36,226
Pasture/Hayland Treated in Plan (ac)		1,945	1,945
CRP Land (ac)		750	750
CRP Treated in Plan (ac)		0	0
Urban (ac)	975	7	982
Urban Treated in Plan (ac)		0	0
Woodland (ac)	9,826	5,979	15,805
Woodland Treated in Plan (ac)		70	70
Public Land (ac)		279	279
Public Land Treated in Plan (ac)		0	0
Other (ac)		2,397	2,397
Other Treated in Plan (ac)		0	0
Stream (mi)	75	208	283
Stream Treated in Plan (mi)		10	10

*Same information for both HUCs (10290102 & 10290105). These numbers have not been divided out per HUC (I.e., duplicate numbers).

Figure 105:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290105

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	1900
Field Border (Ft.)	97,790	Terraces (Ft.)	15,264
Filter Strip (Ac.)	30	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	36	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	90	Critical Planting (Ac.)	52
Stream/Shore protection (Ft.)	6900	Grade Stab. Structures (#)	10
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	1156	CRP Acres	598
CSP Acres	0	WRP Acres	0
WHIP Acres	57	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	36	25
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	2	3
EQIP Ground/Surface water plans	0	0

Sac River Basin
(HUC 10290106)
Missouri Basin Name – Sac River Basin

The Sac River headwaters originate near Springfield, Missouri. Major tributaries include Little Sac River, Turnback Creek, Sons Creek, Horse Creek, Cedar Creek, Coon Creek, Turkey Creek, Brush Creek, and Bear Creek. Stockton Lake inundates large portions of the Sac River and Little Sac River. Truman Reservoir inundates a large area of the Lower Sac River and occasionally floods the lower portions of Coon Creek, Brush Creek, Turkey Creek, and Cedar Creek. The Sac River basin encompasses an area of 1,981 square miles in southwest Missouri. Counties that are partially or entirely within the basin are Barton, Cedar, Christian, Dade, Greene, Hickory, Lawrence, Polk, St. Clair, and Vernon.

Caves, springs, and losing streams are found primarily in the southern areas of the watershed due to the soluble bedrocks (limestone and dolomite) that underlay that portion of the basin. The streams found in the basin range from clear with predominantly chert gravel/cobble streambeds to turbid with silt, sand, and gravel streambeds. The Sac River is a sixth order stream where it enters Truman Reservoir. The Sac River basin is primarily rural. Land use is primarily pasture/grazing, with smaller amounts distributed among forest, row crop, and urban land practices. Animal agriculture is a major enterprise in the basin with beef cattle and dairy production being predominant. Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, livestock with free access to streams and riparian corridors, channelization, road construction, and septic tanks.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) for HUCs 1029010605, 1029010606
    Status - substantially implemented through G01-NPS-01
- ***TMDL*** -

#1371 Brush Creek
Impaired by BOD and VSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1371-brush-ck-info.pdf

#7237 Fellows Lake
Impaired by nutrients.
Information Sheets http://www.dnr.mo.gov/env/wpp/tmdl/info/7237-fellows-lk-info.pdf
Impaired by mercury.
Information Sheets http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#1381 Little Sac River
Impaired by fecal coliform.
TMDL approved by EPA on August 9, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1381-l-sac-r-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1381-little-sac-r-info.pdf

#7236 McDaniel Lake
Impaired by nutrients
TMDL approved by EPA on February 3, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/7236-mcdaniel-lk-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7236-mcdaniel-lk-info.pdf

#1361 Stockton Branch
Impaired by VSS
Permit-in-lieu of TMDL approved by EPA on May 11, 2005.
PIL http://www.dnr.mo.gov/env/wpp/tmdl/1361-stockton-br-pil.pdf
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0055280.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1361-stockton-br-info.pdf

- ***Watershed Groups Formed*** -
  - Valley Mills Project Task Force
  - Little Sac Watershed Steering Committee
  - Community On-site, Stormwater, Groundwater Committees
  - Community On-site Training Curriculum Group
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 8
- ***Groundwater-Level Observation Well Network*** – McDaniel Lake (Greene County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005and September 30, 2006:
  - Clear Creek,
  - Dry Sac River,
  - Turnback Creek, and
  - Pea Ridge Creek.

Figure 106: Number of Volunteer Water Quality Sampling Events Conducted in 10290106 Sac River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	5	1
2	4	7	3
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Community On-Site Wastewater and Stormwater Project (G04-NPS-18)
  - Valley Mill Lake Watershed Restoration Project (G02-NPS-12)
  - Poultry Litter Fertility and Water Quality Demonstration (G05-NPS-23)
  - Polk County Regional Grazing School (G05-NPS-06)

- ***AgNPS SALT Project -***
  - Middle Little Sac River (SN014)
  - Bear Creek (SN026)

Figure 107: AgNPS SALT Project Plan Goals for HUC 10290106

Watershed Name	Middle Little Sac River	Bear Creek	Total
Project #	SN014	SN026	
Watershed Size (ac)	71,942	40,722	112,664
Cropland (ac)	1,000	1,650	2,650
Cropland Treated in Plan (ac)			0
Pasture/Hayland (ac)	25,968	29,526	55,494
Pasture/Hayland Treated in Plan (ac)			0
CRP Land (ac)			0
CRP Treated in Plan (ac)			0
Urban (ac)	3,530	180	3,710
Urban Treated in Plan (ac)			0
Woodland (ac)	25,489	9,366	34,855
Woodland Treated in Plan (ac)			0
Public Land (ac)			0
Public Land Treated in Plan (ac)			0
Other (ac)	6,952		6,952
Other Treated in Plan (ac)			0
Stream (mi)			0
Stream Treated in Plan (mi)			0

Figure 108: NRCS and Partner Contributions: HUC 10290106
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	93	Critical Planting (Ac.)	2
Stream/Shore protection (Ft.)	4500	Grade Stab. Structures (#)	1
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	630	CRP Acres	412
CSP Acres	0	WRP Acres	0
WHIP Acres	36	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	3
Conservation Reserve Program	13	10
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	6	1
EQIP Ground/Surface water plans	0	0

Figure 109:

Summary of FY06 319 NPS Project Evaluation Measures

Sac

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**0**	**24**	**3**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**3**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**3**	**20**	**4**	**1,600**	**6**	**0**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**2**	**4**	**2**	**4**	**20**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**3**	**0**	**2,500**	**0**	**0**	**0**	**0**
(Best Management Practices)							

Pomme de Terre River Basin
(HUC 10290107)
Missouri Basin Name – Pomme de Terre River Basin

Pomme de Terre River is a sixth order river originating in southwest Missouri, near Marshfield. The river flows in a northeast direction from Marshfield and is impounded as Pomme de Terre Lake just upstream of Hermitage, Missouri, and further downstream becomes part of Harry S. Truman Reservoir. Pomme de Terre Lake is a 7,820-acre reservoir constructed and operated by the United States Army Corps of Engineers. Pomme de Terre Dam was closed in 1961 forming the lake, which contains 113 miles of shoreline. Harry S. Truman Lake was formed in 1979 with the closing of Harry S. Truman Dam. Pomme de Terre River and Little Pomme de Terre River (north) makes up one arm of this 55,600-acre impoundment. The Pomme de Terre River watershed encompasses about 840 square miles and includes parts of six Missouri counties (Benton, Dallas, Greene, Hickory, Polk, and Webster). Major tributaries include Little Pomme de Terre River (north), Little Pomme de Terre River (south), and Lindley Creek.

The majority of the Pomme de Terre River watershed is covered in grassland (about 53%) and forest (about 37%). Most grassland is used for pasture and/or hay production for dairy and beef cattle production. Contributing factors to nonpoint source pollution includes runoff from pastures, cattle with free access to streams, and urbanization near Bolivar. Generally, stream bank stability in the basin is good with the exception of localized erosion.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - ***Piper Creek/Town Branch –*** has applied for planning subgrant
- ***TMDL*** -

  #1438 Little Lindley Creek
  Impaired by BOD and VSS.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1438-little-lindley-ck-info.pdf

  #1444 Piper Creek (also known as Town Branch)
  Impaired by VSS.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1444-town-branch-piper-ck-info.pdf
- ***Watershed Groups Formed*** –
  Piper Creek/Town Branch, Bolivar Community Watershed Improvement Group
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Halfway (Polk County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005and September 30, 2006:
  - Little Lindley Creek, and
  - Pomme de Terre River.

Figure 110: Number of Volunteer Water Quality Sampling Events Conducted in 10290107 Pomme de Terre River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	2	1
2	2	1	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Polk County Regional Grazing School (G05-NPS-06)
- ***AgNPS SALT Project*** -
  - Lindley Creek (SN020)
  - Lower Pomme De Terre (SN059)
  - Hominy Creek (SN064)

Figure 111: AgNPS SALT Project Plan Goals for HUC 10290107

Watershed Name	Lindley Creek	Lower Pomme de Terre	Hominy Creek	Total
Project #	SN020	SN059	SN064	
Watershed Size (ac)		40,582	52,582	93,164
Cropland (ac)	700	547	250	1,497
Cropland Treated in Plan (ac)		400	75	475
Pasture/Hayland (ac)	23,453	14,244	37,865	75,562
Pasture/Hayland Treated in Plan (ac)		6,000	14,380	20,380
CRP Land (ac)		0	16	16
CRP Treated in Plan (ac)		0	0	0
Urban (ac)	375	18	305	698
Urban Treated in Plan (ac)		0	0	0
Woodland (ac)	15,636	21,438	14,080	51,154
Woodland Treated in Plan (ac)		2,600	400	3,000
Public Land (ac)		3,021	5	3,026
Public Land Treated in Plan (ac)		0	0	0
Other (ac)		1,314	61	1,375
Other Treated in Plan (ac)		0	0	0
Stream (mi)		75	187	262
Stream Treated in Plan (mi)		20	10	30

Figure 112:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290107

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	150	Critical Planting (Ac.)	1
Stream/Shore protection (Ft.)	4500	Grade Stab. Structures (#)	2
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	654	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	2267	CRP Acres	31
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	0
Conservation Reserve Program	5	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	2	0
EQIP Ground/Surface water plans	0	0

South Grand River Basin
(HUC 10290108)
Missouri Basin Name – South Grand River Basin

The South Grand River Watershed, HUC 10290108, occupies a land area of approximately 2,046 square miles in portions of eight counties in Missouri and 2 counties in Kansas. These counties include Bates, Benton, Cass, Henry, Jackson, Johnson, Pettis, and St. Clair counties in Missouri and Johnson and Miami in Kansas. Most of the watershed (98.5%) lies within Missouri.

The South Grand River is formed by the confluence of Massey Creek and East Creek approximately five miles southwest of Peculiar, Missouri. The river flows approximately 67 miles before emptying into Harry S. Truman Reservoir near Clinton, Missouri. Big Creek is the largest tributary to the South Grand. The South Grand Watershed has 13 cities and towns with populations exceeding 1,000 persons within or partially within its boundary. There are 186 third order and larger streams within the watershed. The South Grand is 66.4 miles long and becomes seventh order at the confluence of Big Creek. Total drainage area of the South Grand Watershed is 2,046 square miles with 2,016 square miles in Missouri. There are approximately 636 stream miles and 24,378 impoundment acres in the basin.

The basin is 52% grassland, 27% cropland, 18% forest, and 3% water and wetland. Major nonpoint sources of pollution are animal agriculture, mine land runoff, construction, urban pollutants, and sedimentation from channelization. Most streams on the impaired list have impacts related to coal mining activities in the watershed. Several streams within of the South Grand Watershed, including the South Grand River and Big Creek, are highly altered by channelization and levees. Inundation by Truman Reservoir has eliminated or impacted many stream miles in the lower portion of the watershed including 39% of the original South Grand River.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plan*** – none
- ***TMDL*** -

#9000UBarkers Creek Tributary
Impaired by pH and sulfate.
TMDL approved by EPA on February 12, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/9000-trib-barker-ck-tmdl.pdf
Information sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/9000-trib-barker-ck-info.pdf

#1250 Big Creek
Impaired by sediment.
TMDL approved by EPA on October 13, 2006.
TMDL http://www.epa.gov/region07/water/pdf/big_creek_final_tmdl101306.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

#1224 Big Otter Creek
Impaired by pH.
TMDL approved by EPA on August 17, 2006.
TMDL http://www.epa.gov/region07/water/pdf/big_otter_final_tmdl_mo081706.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1224-1225-big-otter-ck-and-trib-info.pdf

#1225 Big Otter Creek Tributary
Impaired by pH.
TMDL approved by EPA on October 21, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1225-trib-big-otter-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1224-1225-big-otter-ck-and-trib-info.pdf

#7370 Bluestem Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#1282 East Fork Tebo Creek
Impaired by pH.
TMDL approved by EPA on July 24, 2006.
TMDL http://www.epa.gov/region07/water/pdf/east_fork_tebo_mo_final072406.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1282-1284-1288-1292-tebo-ck-info.pdf

#7207 Harry S. Truman Lake
Impaired by naturally occurring manganese.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7207-truman-lk-info.pdf

#1251 Honey Creek
Impaired by sulfate.
TMDL approved by EPA on August 17, 2006.
TMDL http://www.epa.gov/region07/water/pdf/honey_crk_final_tmdl_mo081706.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1251-honey-ck-info.pdf

#1284 Middle Fork Tebo Creek
Impaired by sulfate.
TMDL approved by EPA on February 12, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/tebo-ck-final-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1282-1284-1288-1292-tebo-ck-info.pdf

#1288 Middle Fork Tebo Creek Tributary
Impaired by sulfate and pH.
TMDL approved by EPA on February 12, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1284-1288-1292-tebo-ck-tmdl.pdf
Information sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1282-1284-1288-1292-tebo-ck-info.pdf

#1292 West Fork Tebo Creek
Impaired by sulfate.
TMDL approved by EPA on February 12, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1284-1288-1292-tebo-ck-tmdl.pdf
Information sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1282-1284-1288-1292-tebo-ck-info.pdf

#7212 Winnebago Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

City of Leeton (PWSSID # 1010460)
Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** - Urich (Henry County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in the Missouri portion of this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - South Grand River Headwaters Watershed Water Quality Education (G05-NPS-03)
- ***AgNPS SALT Project –***
  - South Grand River (SN044)

Figure 113: AgNPS SALT Project Plan Goals for HUC 10290108

Watershed Name	South Grand River
Project #	SN044
Watershed Size (ac)	49,565
Cropland (ac)	18,150
Cropland Treated in Plan (ac)	7,623
Pasture/Hayland (ac)	24,395
Pasture/Hayland Treated in Plan (ac)	4,608
CRP Land (ac)	1,050
CRP Treated in Plan (ac)	0
Urban (ac)	5
Urban Treated in Plan (ac)	0
Woodland (ac)	4,758
Woodland Treated in Plan (ac)	100
Public Land (ac)	631
Public Land Treated in Plan (ac)	0
Other (ac)	576
Other Treated in Plan (ac)	0
Stream (mi)	23
Stream Treated in Plan (mi)	5

Figure 114:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290108

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	2824
Field Border (Ft.)	171,393	Terraces (Ft.)	55,663
Filter Strip (Ac.)	11	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	81	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	29	Critical Planting (Ac.)	88
Stream/Shore protection (Ft.)	500	Grade Stab. Structures (#)	12
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	420	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	5216	CRP Acres	2427
CSP Acres	0	WRP Acres	234
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	88	44
Conservation Security Program	0	0
Wetland Reserve Program	1	2
Wildlife Hab. Incentive Program	1	0
EQIP Ground/Surface water plans	0	0

Figure 115:

Summary of FY06 319 NPS Project Evaluation Measures

South Grand

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**1**	**39**	**0**	**0**	**4**	**245**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(Best Management Practices)							

Lake of the Ozarks Basin
(HUC 10290109)
Missouri Basin Name – Lake of the Ozarks Basin

The Lake of the Ozarks basin, HUC 10290109, is found in central Missouri in the counties of Pulaski, Miller, Camden, Morgan, Laclede, Benton, and Hickory. The Lake of the Ozarks was formed in 1931 in the western half of the East Osage River Basin. A number of losing streams and springs exist within the area. Truman Dam and Bagnell Dam on the Osage River have significantly impacted the hydrology of the region. There are over 85,000 people served in the basin by either public supplied surface water (9%), public supplied groundwater (39%), or private wells (52%).

Karst features are common and soils are generally acidic with moderate to low fertility. Land use in the basin is listed as approximately 54.8% forest, 39.7% grassland, 2.5% open water, 1.6% cropland, and 1.6% urban. Erosion rates are generally low although new housing developments, road construction, intensive confinement of livestock and overgrazing have denuded the land, causing locally increased erosion and sediment pollution. Animal feeding operations, gravel mining, failing septic systems, urban construction projects, and stream flow alterations and channel degradation from discharge of impounded water for hydroelectric power result in nonpoint source pollution in the basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Lake of the Ozarks – Group working with Union Electric on Shoreling Protection Plan and intend to apply for a watershed planning grant
- ***TMDL***
  #1145 Dry Auglaise Creek
  Impairment is unknown.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1145-dry-auglaize-ck-info.pdf
  #7205 Lake of the Ozarks
  Impaired by fish trauma, gas supersaturation, and low DO.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7205-lk-ozarks-info.pdf
- ***Watershed Groups Formed*** –
  Lake of the Ozarks Alliance
- ***Source Water Protection Plans*** –
  City of Laurie (PWSSID #3024413) – pending issue
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – Lebanon (Laclede County), Ozark Fisheries (Camden County), Camdenton (Camden County), Warsaw (Benton County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Coffee Creek, and
  - Wet Glaize Creek.

Figure 116: Number of Volunteer Water Quality Sampling Events Conducted in 10290109 Lake of the Ozarks Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	0	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project -***
  - Deer Creek (SN018)
  - Dry Auglaize (SN048)

Figure 117: AgNPS SALT Project Plan Goals for HUC 10290109

Watershed Name	Deer Creek	Dry Auglaize	Total
Project #	SN018	SN048	
Watershed Size (ac)	46,378	81,490	127,868
Cropland (ac)		300	300
Cropland Treated in Plan (ac)		90	90
Pasture/Hayland (ac)	11,973	54,726	66,699
Pasture/Hayland Treated in Plan (ac)	4,260	10,945	15,205
CRP Land (ac)		64	64
CRP Treated in Plan (ac)		64	64
Urban (ac)	8,550	2,886	11,436
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	27,626	22,579	50,205
Woodland Treated in Plan (ac)	350	4,516	4,866
Public Land (ac)	5,248	25	5,273
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	676	910	1,586
Other Treated in Plan (ac)	0	0	0
Stream (mi)	30	42	72
Stream Treated in Plan (mi)	3	10	13

Figure 118:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290109

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	3,011
Filter Strip (Ac.)	60	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	2	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	3	Critical Planting (Ac.)	9
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	9
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	460	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	1195	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	108	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	9	4
Conservation Reserve Program	2	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	3
EQIP Ground/Surface water plans	0	0

Niangua River Basin
(HUC 10290110)
Missouri Basin Name – Niangua River Basin

The Niangua River, HUC 10290110, is a sixth order tributary of the Osage River in west central Missouri. It originates in northern Webster County, at the confluence of its East and West Forks, about 7 miles north of Marshfield. The river meanders 120 miles to the north where it joins the Osage River (Osage Arm, Lake of the Ozarks). The largest tributary is the Little Niangua River, a fifth order stream which drains about one third of the entire watershed which originates in central Dallas County. It meanders to the north and east 59 miles before joining the Niangua River. The lower 21 miles of the Niangua and lower 10 miles of the Little Niangua were inundated in 1931 by Lake of the Ozarks. The Niangua Watershed includes portions of six counties, Webster, Dallas, Camden, Hickory, Laclede and Benton. Only 500 acres of Benton County is within the watershed and includes negligible population and development.

Most of the streams in the watershed are designated for whole body contact recreation and many streams are designated for cool-water fishing. A portion of Little Niangua River is protected as an Outstanding State Resource Water (OSRW). Major nonpoint source pollution in the watershed comes from animal agriculture due to large numbers of cattle in these counties. Other significant sources of pollution are from individual septic tanks especially around the Lake of the Ozarks, and improper sand and gravel mining.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – Marshfield (Webster County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bank Branch,
  - Little Niangua River,
  - Niangua River,
  - Spencer Creek, and
  - West Fork Niangua River.

Figure 119: Number of Volunteer Water Quality Sampling Events Conducted in 10290110 Niangua River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	3	1
2	8	9	4
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project -***
  - Greasy Creek (SN072)

Figure 120: AgNPS SALT Project Plan Goals for HUC 10290110

Watershed Name	Greasy Creek
Project #	SN072
Watershed Size (ac)	46,227
Cropland (ac)	500
Cropland Treated in Plan (ac)	200
Pasture/Hayland (ac)	29,377
Pasture/Hayland Treated in Plan (ac)	9,005
CRP Land (ac)	0
CRP Treated in Plan (ac)	0
Urban (ac)	142
Urban Treated in Plan (ac)	0
Woodland (ac)	16,107
Woodland Treated in Plan (ac)	450
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	101
Other Treated in Plan (ac)	0
Stream (mi)	32
Stream Treated in Plan (mi)	8

Figure 121: NRCS and Partner Contributions: HUC 10290110
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	23	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	8
Nutrient Management (Ac.)	906	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	37	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	1
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

Lower Osage River Basin
(HUC 10290111)
Missouri Basin Name – Lower Osage River Basin

The Lower Osage River Basin, HUC 10290111, is found in central Missouri in the counties of Osage, Maries, Cole, Pulaski, Miller, Camden, and Morgan. The basin begins at Bagnell Dam where the Lake of the Ozarks enters the Osage River in Miller County. The river runs in a northwesterly direction until it empties into the Missouri River in Cole County. The major tributaries to the Osage River are the Tavern Creek and the Maries River. The basin is primarily rural with animal agriculture as the primary land use. Nonpoint source pollution in the watershed comes from improper sand and gravel mining, animal agriculture and construction in the Osage Beach and Lake Ozark areas. Hydroelectric power generation using the discharge of impounded water of the Osage River has caused considerable stream flow alteration and channel degradation to the Osage River below Bagnell Dam and has caused multiple fish kills below Bagnell Dam.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plan*** – none
- ***TMDL***
  #1031 Osage River
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Dixon (PWSSID # 3010219)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Barren Fork (Tavern Creek)
  - Big Saline Creek,
  - Brushy Fork (Tavern Creek)
  - Maries River, and
  - Sugar Creek.

Figure 122: Number of Volunteer Water Quality Sampling Events Conducted in 10290111 Lower Osage River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	6	5	7
2	3	6	2
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** -
  - Upper Big Maries River (SN050)
  - Lower Big Maries River (SN051)
  - Upper Tavern Creek (SN061)
  - Little Maries River (SN074)

Figure 123: AgNPS SALT Project Plan Goals for HUC 10290111

Watershed Name	Upper Big Maries River	Lower Big Maries River	Upper Tavern Creek	Little Maries River	Total
Project #	SN050	SN051	SN061	SN074	
Watershed Size (ac)	61,689	67,863	42,682	38,616	210,850
Cropland (ac)	118	2,664	300	4,634	7,716
Cropland Treated in Plan (ac)	37	1,000	80	912	2,029
Pasture/Hayland (ac)	33,568	26,496	20,292	18,755	99,111
Pasture/Hayland Treated in Plan (ac)	8,900	10,000	6,700	3,589	29,189
CRP Land (ac)	0	110	0	0	110
CRP Treated in Plan (ac)	0	0	0	0	0
Urban (ac)	141	135	97	0	373
Urban Treated in Plan (ac)	0	0	0	0	0
Woodland (ac)	27,628	38,354	20,436	14,960	101,378
Woodland Treated in Plan (ac)	8,288	9,000	3,000	1,988	22,276
Public Land (ac)	234	104	28	267	633
Public Land Treated in Plan (ac)	0	0	0	0	0
Other (ac)	0	0	1,529	0	1,529
Other Treated in Plan (ac)	0	0	0	0	0
Stream (mi)	315	279	82	164	840
Stream Treated in Plan (mi)	46	67	12	20	145

Figure 124: NRCS and Partner Contributions: HUC 10290111
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	1525
Field Border (Ft.)	4,590	Terraces (Ft.)	0
Filter Strip (Ac.)	4	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	30	Critical Planting (Ac.)	24
Stream/Shore protection (Ft.)	1000	Grade Stab. Structures (#)	8
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	50	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	782	CRP Acres	48
CSP Acres	0	WRP Acres	0
WHIP Acres	318	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	5	3
Conservation Reserve Program	18	4
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	3
EQIP Ground/Surface water plans	0	0

Upper Gasconade River Basin
(HUC 10290201)
Missouri Basin Name – Upper Gasconade River Basin

The Upper Gasconade River basin, HUC 10290201, includes portions of Wright, Webster, Laclede, Camden, Texas, and Pulaski counties. The Gasconade River meanders north to northeast until it joins the Missouri River. The Upper and Lower Gasconade River watersheds drain 2,806 square miles. The Gasconade River is 271 miles long from mouth to headwaters with 263 miles having permanent flow. The entire Gasconade River watershed is reported to have 76 springs and the largest concentration of big springs in the state. The karst topography causes losing portions in the Upper basin in the Osage Fork, Roubidoux, and North Cobb creeks, and Gasconade River.

The Gasconade River watershed is mostly rural with low population density and high farmland density. The most populated area in the Upper basin is in Pulaski County, which is experiencing land development from growth surrounding Fort Leonard Wood. The basin has 49% grassland and cropland, 46% forest, with the remainder as urban and water areas. Designated uses on water bodies within the watershed are warm water aquatic life protection (fishing) and livestock and wildlife watering. Nonpoint source pollution results from animal agriculture, sand and gravel mining, residential septics, construction, and impervious surface runoff in urbanized areas. The Upper Gasconade River watershed is poorly forested along major segments of its tributaries with only 38% of the major stream segments with forested corridors.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #1505 East Whetstone Creek
  Impaired by BOD.
  TMDL approved by EPA on January 28, 2002.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1505-east-whetstone-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1505-whetstone-ck-info.pdf
  #1455 Gasconade River
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Watershed Groups Formed*** -
  - Osage Fork of the Gasconade 319 Project Steering Committee
- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Dixon (PWSSID # 3010219)
  Groundwater
  City of Norwood (PWSSID # 5010585)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Lebanon (Laclede County), Fairview (Texas County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Gasconade River, and
  - Unnamed Tributary to Osage Fork Gasconade River.

Figure 125: Number of Volunteer Water Quality Sampling Events Conducted in 10290201 Upper Gasconade River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	0
2	2	3	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Osage Fork Animal Waste and Nutrient Management Implementation Project (G04-NPS-11)
- ***AgNPS SALT Project -***

  - Whetstone Creek (SN030)
  - Woods Fork-Gasconade (SN082)

Figure 126: AgNPS SALT Project Plan Goals for HUC 10290201

Watershed Name	Whetstone Creek	Woods Fork - Gasconade	Total
Project #	SN030	SN082	
Watershed Size (ac)	68,040	41,600	109,640
Cropland (ac)	2,792	250	3,042
Cropland Treated in Plan (ac)		75	75
Pasture/Hayland (ac)	20,936	24,710	45,646
Pasture/Hayland Treated in Plan (ac)		5,570	5,570
CRP Land (ac)		0	0
CRP Treated in Plan (ac)		0	0
Urban (ac)		371	371
Urban Treated in Plan (ac)		0	0
Woodland (ac)	22,332	16,152	38,484
Woodland Treated in Plan (ac)		1,000	1,000
Public Land (ac)		117	117
Public Land Treated in Plan (ac)		0	0
Other (ac)	465	0	465
Other Treated in Plan (ac)		0	0
Stream (mi)		33	33
Stream Treated in Plan (mi)		2	2

Figure 127:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290201

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	184	CRP Acres	22
CSP Acres	0	WRP Acres	0
WHIP Acres	55	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	5	3
Conservation Reserve Program	2	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

Figure 128:

Summary of FY06 319 NPS Project Evaluation Measures

Upper Gasconade

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**1**	**0**	**0**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**1**	**180**	**0**	**0**	**0**	**0**	**0**	**0**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Event (1)
Education/Information	**0**	**0**	**4**	**750**	**0**	**0**	**0**	**0**	**0**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**4**	**0**	**0**	**884**	**424**	**1**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**		
(Best Management Practices)									

Big Piney River Basin
(HUC 10290202)
Missouri Basin Name – Big Piney River Basin

The Big Piney River basin, HUC 10290202, occupies an area of approximately 755 square miles in portions of Texas, Howell, Phelps, and Pulaski counties in Missouri. Most of the watershed (74%) lies within Texas County, while Pulaski, Phelps, and Howell counties contain 14%, 12%, and less than 1% of the watershed respectively. The Big Piney River begins as a first order stream approximately 4 miles northwest of Cabool, Missouri. From its beginnings, the stream flows in a southeasterly direction for approximately six miles before turning northeast and flows slightly over 100 miles before emptying into the Gasconade River 2.8 river miles north of Interstate 44. The geology of the Big Piney Watershed (primarily consisting of soluble rock formations of dolomites and sandstone dolomites), in combination with an average annual precipitation of over 42 inches has created a karst landscape within the watershed. This karst landscape is characterized by a close relationship between the surface water and ground water systems. There are 91 third order and larger streams within the watershed. These streams account for a total of approximately 602 stream miles or 30% of the total stream miles within the watershed. The Big Piney River is 110.5 miles long and becomes sixth order at the confluence of West Piney Creek. There are five major subwatersheds (based on 5th order streams) within the watershed. These include the subwatersheds of Spring Creek, West Piney Creek, Arthur Creek, Big Paddy Creek, and Bald Ridge Creek.

Approximately 62.7% of the watershed is forested, 36.6% grassland, 0.1% cropland and 0.6% urban, and 0.1% water. Approximately 264 stream miles and 10 impoundment acres within the Big Piney Watershed are classified and have designated beneficial uses. Nonpoint source pollution problems result from livestock access to streams, and uncontrolled septic discharge. Also, all waters within the watershed are currently (2004) included in a statewide fish consumption advisory for largemouth bass for mercury. Periodically elevated phosphorous levels and fecal coliform counts have been noted at a few water quality sample sites within the watershed and two springs within the watershed have been determined to suffer from probable septic contamination. In addition, detections of pesticides and/or elevated levels of other constituents have been noted from some ground water and surface water quality sites.

A 0.4 mile segment of Brushy Creek is included on 2002 303(d) listing of impaired waters for biochemical oxygen demand and volatile suspended solids with the source being the Houston Brushy Creek Wastewater Treatment Plant.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plan*** – none
- ***TMDL*** –
  #1592 Brushy Creek
  Impaired by BOD and VSS.
  TMDL approved by EPA on November 30, 2005.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1592-brushy-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1592-brushy-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Cabool *(PWSSID # 4010120)*
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Big Piney River.

Figure 129: Number of Volunteer Water Quality Sampling Events Conducted in 10290202 Big Piney River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	1	1
2	3	3	3
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 130:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290202

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Lower Gasconade River Basin
(HUC 10290203)
Missouri Basin Name – Lower Gasconade River Basin

The Lower Gasconade River Basin, HUC 10290203 is located in portions of Gasconade, Osage, Maries, Texas, Dent, Phelps, and Pulaski counties. The karst topography causes losing stream portions in the Little Piney, Spring, and Mill creeks, and the Gasconade River. There are a large number of springs in the watershed with a major concentration in the Little Piney Creek watershed. Little Piney Creek for 25 miles has been protected as an Outstanding State Resource Water (OSRW) in Missouri.

As a whole, the Gasconade River watershed is rural with low population density and high farmland density. Watershed areas of Maries, Osage, and Gasconade counties have low population density. The basin has approximately 33% grassland and cropland and 66% forest. Nonpoint source pollution in the watershed results from sand and gravel mining, runoff from farms, mining operations, construction sites, forest operations, residential septics, and impervious surface in urbanized areas. Forty-six percent of the major segments of the watershed have forested corridors.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL***
  #1455 Gasconade River
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
  #1529 Little Beaver Creek
  Impaired by VSS.
  Permit-in-lieu of TMDL approved by EPA on August 9, 2006.
  PIL http://www.dnr.mo.gov/env/wpp/tmdl/1529-little-beaver-ck-pil.pdf
  MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0047023.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1529-little-beaver-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Belle *(PWSSID # 3010054)*
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Missouri Department of Conservation and Ramada Inn (Phelps County), Drake (Gasconade County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Beaver Creek,
  - Pointers Creek, and
  - Unnamed Tributary to Beaver Creek.

Figure 131: Number of Volunteer Water Quality Sampling Events Conducted in 10290203 Lower Gasconade River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	0	1
2	0	0	0
3	1	1	1
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 132:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10290203

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	30,345	Terraces (Ft.)	2,100
Filter Strip (Ac.)	55	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	8	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	85	Critical Planting (Ac.)	23
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	9
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	107	CRP Acres	445
CSP Acres	0	WRP Acres	0
WHIP Acres	33	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	2	2
Conservation Reserve Program	23	15
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

Lower Missouri - Crooked River Basin
(HUC 10300101)
Missouri Basin Name – Missouri River Mainstem-Kansas City to Glasgow

The Lower Missouri-Crooked, HUC 10300101, consists of the land drained by the Missouri River and its tributaries from just downstream of its confluence with the Kansas River to Glasgow, Missouri. The drainages of the Grand River, Chariton River, and Little Chariton River are not included in the basin. It covers an area of approximately 2,650 square miles, 95% of which lies in western Missouri, with the remainder in eastern Kansas. Missouri counties partially contained in this watershed include Clay, Caldwell, Howard, Carroll, Johnson, Chariton, Clinton, Lafayette, Jackson, Cass, Platte, Ray, and Saline. The major tributaries of the Missouri that drain the basin are the Blue River, Little Blue River, Fishing River, Crooked River, Sni-a-Bar Creek, and Wakenda Creek. The only sizable lakes in the basin are oxbows near the Missouri, such as Cooley Lake, Jackass Bend, Sunshine Lake, and Cut-Off Lake.

The Missouri portion of the basin is largely agricultural with 43% row crops, 33% grasslands and 18% forest. Kansas City and surrounding areas contribute 4% urban area, and 1% is open water. There are 758.1 miles of classified stream in the basin, of which 5.2 miles, or 0.7%, are impaired by point source discharges. The major nonpoint source issue is the degradation of aquatic habitat in 97% of the watershed, resulting from channelization (27% of the streams), other streambank alterations, and loss of riparian corridors. Soil erosion, subsequent in-stream sediment deposition, and runoff of fertilizers, pesticides, and animal wastes, and urban storm water are also concerns. The majority of the people living in the basin receive their drinking water from municipal supplies drawn from the Missouri River or its alluvial aquifer.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 8.
- ***TMDL -***

#0417 Blue River
Impaired by chlordane.
TMDL approved by EPA on November 19, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0417-0418-0419-0421-blue-river-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0417-0418-0419-0421-blue-r-info.pdf

#0418 Blue River
Impaired by chlordane.
TMDL approved by EPA on November 19, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0417-0418-0419-0421-blue-river-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0417-0418-0419-0421-blue-r-info.pdf

#0419 Blue River
Impaired by chlordane.
TMDL approved by EPA on November 19, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0417-0418-0419-0421-blue-river-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0417-0418-0419-0421-blue-r-info.pdf

#0421 Blue River
Impaired by chlordane.
TMDL approved by EPA on November 19, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0417-0418-0419-0421-blue-river-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0417-0418-0419-0421-blue-r-info.pdf

#7090 Cooley Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#3413 Horseshoe Creek
Impaired by BOD and ammonia nitrogen.
Permit-in-lieu of TMDL approved by EPA on April 21, 2006.
PIL (not available online)
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0130371.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3413-horseshoe-ck-info.pdf

#0420 Indian Creek
Impaired by fecal coliform.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0420-indian-ck-info.pdf

#0423 Little Blue River
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#7097 Longview Reservoir
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#0356 Missouri River
Impaired by chlordane and PCBs.
TMDL approved by EPA on November 3, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf

#0701 Missouri River
Impaired by chlordane and PCBs.
TMDL approved by EPA on November 3, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf

#7087 Watkins Mill Lake
Impaired by fecal coliform.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7087-watkins-mill-lk-info.pdf

#0400 West Fork Sni-A-Bar Creek
Impaired by BOD and VSS.
TMDL approved by EPA on January 6, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0400-west-fork-sni-a-bar-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0400-w-fork-sni-a-bar-info.pdf

- ***Watershed Groups Formed*** -
  - McCroskie Creek Project Steering Committee
  - Kansas City Metropolitan Water Quality Initiative Stakeholder Advisory Committee

- ***Source Water Protection Plans*** - http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Hardin (PWSSID # 1010346)
  Groundwater
  City of Independence (PWSSID # 1010399)
  Groundwater
  City of Slater (PWSSID # 2010745)
  Groundwater
  City of Higginsville (PWSSID #1010363
  Surface Water
  Tri County Water Authority (PWSSIS #1071079) – pending issue
  Groundwater
  City of Norborne (PWSSID #2010578) – pending issue
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 12
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Blue River,
  - Burr Oak Creek
  - East Fork Little Blue River,
  - Indian Creek,
  - Little Blue River,
  - Shoal Creek,
  - Rush Creek,
  - Unnamed Tributary to Little Blue River (Adair Creek), and
  - Wakenda Creek.

Figure 133: Number of Volunteer Water Quality Sampling Events Conducted in 10300101 Lower Missouri – Crooked River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	5	3	5
2	6	11	4
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Big River Stewardship and Education Initiative (G06-NPS-05)
  - Kansas City Metropolitan Water Quality Initiative (G04-NPS-05)
  - McCroskie Creek Watershed Project (G04-NPS-01)

- ***AgNPS SALT Project –***
  - McCroskie Creek (SN031)

Figure 134: AgNPS SALT Project Plan Goals for HUC 10300101

Watershed Name	McCroskie Creek
Project #	SN031
Watershed Size (ac)	43,744
Cropland (ac)	24,565
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	15,803
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	
Urban Treated in Plan (ac)	
Woodland (ac)	3,070
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	298
Other Treated in Plan (ac)	
Stream (mi)	98
Stream Treated in Plan (mi)	

Figure 135:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10300101

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	8057
Field Border (Ft.)	61,965	Terraces (Ft.)	58
Filter Strip (Ac.)	62	Lined WW or outlet (Ft.)	426945
Grassed waterways (Ac.)	58	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	60	Critical Planting (Ac.)	40
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	32
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	42	Wells Decomissioned (#)	3
Nutrient Management (Ac.)	9147	CRP Acres	2445
CSP Acres	147	WRP Acres	114
WHIP Acres	13	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	101	68
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	2	2
EQIP Ground/Surface water plans	0	0

Figure 136:

Summary of FY06 319 NPS Project Evaluation Measures

Lower Missouri-Crooked

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**3**	**5**	**4**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**2**	**40**	**0**	**0**	**0**	**0**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**1**	**0**	**3**	**875**	**7**	**157**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**9**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**1**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**55**	**673**	**0**	**2,514**	**0**	**0**	**0**
(Best Management Practices)							

Lower Missouri-Moreau River Basin
(HUC 10300102)
Missouri Basin Name – Missouri River Mainstem - Glasgow to Hermann

The Missouri River Mainstem from Glasgow to Hermann, HUC 10300102, lies in the central Missouri counties of Cole, Osage, Howard, Gasconade, Morgan, Randolph, Cooper, Chariton, Saline, Callaway, Boone, Audrain, Miller, Montgomery, and Moniteau. The Moreau River is formed by the union of North Moreau Creek and South Moreau Creek, and empties into the Missouri River just south of Jefferson City, Missouri in Cole County. The watershed is approximately 584 square miles. The Moreau is a 6th order stream with base flows that are poorly sustained.

Current land use in the basin is 2.6% urban, 5.8% woodland, 18.4% forest, 32.4% grassland, and 40.5% cropland. The cities of Jefferson City, California, Versailles, Tipton, Eldon, and Wardsville ring the perimeter of the basin. Cropland and grassland uses predominate in the western portion of the basin. Forest, grassland and woodland predominate in the eastern half of the basin.

Nonpoint source pollution in 1997 included soil erosion from cropland and pasture. Other sources of pollution include in-stream erosion and nutrient-loaded runoff from crop fields, livestock pastures, and residential septic fields. The clearing of riparian corridors contributes to streambank instability and allows sediment laden runoff to reach streams. Inspection of aerial photos of the mainstem Moreau River indicated 16% of streambanks had virtually no tree corridor and 40% had one row to 25 meters of continuous tree coverage. Forty-four percent had a tree corridor at least 26 meters wide. An appropriate goal for a wooded riparian border is 100-300 feet (33-99 meters) wide.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - A plan for Bonne Femme Creek HUC 10300102130
    Status - being developed through G03-NPS-16
  - 9–element plan for Hinkson Creek HUC 10300102120001, 10300102120002
    Status - being developed through G04-NPS-23
- ***TMDL*** -

#7186 Ben Branch Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#0709 Bynum Creek
Impaired by NVSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0709-bynum-ck-info.pdf

#0737 Cedar Creek
Impaired by pH and sulfate.
TMDL approved by EPA on January 30, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0737-cedar-creek-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0737-cedar-ck-info.pdf
Impaired by sulfate.
TMDL approved by EPA on July 14, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0742-manacle-0737-cedar-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0742-manacle-0737-cedar-ck-info.pdf

#0811 E. Brush Creek
Impaired by nutrients, BOD, and NFR.
Permit-in-Lieu of TMDL approved by EPA on December 11, 2006.
PIL http://www.dnr.mo.gov/env/wpp/tmdl/0811-e-brush-ck-tmdl-pil.pdf
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0023281.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0811-e-brush-ck-info.pdf
#1007 Hinkson Creek
Impaired by unknown pollutants.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1007-1008-hinkson-ck-info.pdf
#1008 Hinkson Creek
Impaired by unknown pollutants.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1007-1008-hinkson-ck-info.pdf
#7388 Hough Park Lake
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
#1016 Kelley Branch
Impaired by NVSS (sediment).
TMDL approved by EPA on December 19, 2003.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1016-kelley-br-1014-rocky-fk-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1016-kelley-br-info.pdf
#7436 Lake of the Woods
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
#0742 Manacle Creek
Impaired by low pH and sulfate.
TMDL approved by EPA on July 14, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0742-manacle-0737-cedar-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0742-manacle-0737-cedar-ck-info.pdf
#0701 Missouri River
Impaired by chlordane and PCBs.
TMDL approved by EPA on November 3, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf
#0942 North Moreau Creek
Impaired by NFR.
TMDL approved by EPA on December 1, 1999.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0942-n-moreau-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0942-n-moreau-ck-info.pdf
#1014 Rocky Fork
Impaired by NVSS.
TMDL approved by EPA on December 19, 2003.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/1016-kelley-br-1014-rocky-fk-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/1014-rocky-fork-info.pdf
#0710 Stinson Creek
Impaired by BOD and VSS.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0710-stinson-ck-info.pdf

#0959 Straight Fork
Impaired by VSS.
Permit-in-lieu of TMDL approved by EPA on December 11, 2006.
PIL http://www.dnr.mo.gov/env/wpp/tmdl/0959-straight-fk-pil.pdf
MSOP http://www.dnr.mo.gov/env/wpp/permits/issued/0094927.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0959-straight-fork-info.pdf

- ***Watershed Groups Formed*** -
  - Hinkson Creek Steering Committee
  - Bonne Femme Watershed Policy Committee
  - Bonne Femme Watershed Stakeholder Committee
  - Columbia Show-Me Yard and Neighborhood Technical Committee
  - Wonderful World of Water Festival Planning Committee
- ***Source Water Protection Plans*** –
  Boone County PWSD #9 (PWSSID #3024058) – pending issue
  City of California (PWSSID #3010124) – pending issue
  City of New Franklin (PWSSID #2010566) – pending issue

Water Quality Monitoring

- ***Active USGS Gaging Stations*** - 4
- ***Groundwater-Level Observation Well Network*** – Jefferson City (Callaway County), Arrow Rock (Cooper County), Columbia (Boone County), Linn (Osage County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bass Creek,
  - Bonne Femme Creek,
  - Devils Icebox Cave Branch,
  - Flat Branch,
  - Gans Creek,
  - Grindstone Creek,
  - Hinkson Creek,
  - Hominy Creek,
  - Logan Creek,
  - North Fork Grindstone Creek,
  - Rocky Fork Creek,
  - Silver Fork,
  - South Fork Grindstone Creek,
  - Stinson Creek,
  - Unnamed Tributary to Boggs Creek, and
  - Unnamed Tributary to Missouri River.

Figure 137: Number of Volunteer Water Quality Sampling Events Conducted in 10300102 Lower Missouri – Moreau River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	7	6	6
2	11	10	9
3	4	6	4
4	2	2	2

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Land-use Planning and Water Quality Restoration in Bonne Femme Creek (G03-NPS-16)
  - Hinkson Creek Watershed Restoration Project (G04-NPS-23)
  - Reservoir Daily Dynamics (G04-NPS-25)
  - Big River Stewardship and Education Initiative (G06-NPS-05)
  - Stinson Creek S.W.A.T. After School Education (G06-NPS-06)
  - Jefferson City Watershed Festival and Associated Educational Activities (G06-NPS-17)
- ***AgNPS SALT Project –***
  - Upper Petite Saline Creek (SN013)
  - Upper Hinkson Creek (SN019)
  - Upper Moreau River (SN023)
  - Upper Moniteau Creek (SN057)
  - Lower Moniteau Creek (SN062)

Figure 138: AgNPS SALT Project Plan Goals for HUC 10300102

Watershed Name	Upper Petite Saline Creek	Upper Hinkson Creek	Upper Moreau River	Upper Moniteau Creek	Lower Moniteau Creek	Total
Project #	SN013	SN019	SN023	SN057	SN062	
Watershed Size (ac)	50,146	32,918	48,845	77,347	71,398	280,654
Cropland (ac)	19,682	5,925	14,400	16,590	8,044	64,641
Cropland Treated in Plan (ac)				7,299	2,517	9,816
Pasture/Hayland (ac)	24,621	13,826	24,100	44,832	35,194	142,573
Pasture/Hayland Treated in Plan (ac)				2,350	7,860	10,210
CRP Land (ac)			2,500	1,840	1,113	5,453
CRP Treated in Plan (ac)				0	0	0
Urban (ac)		6,582	1,600	108	218	8,508
Urban Treated in Plan (ac)				0	0	0
Woodland (ac)	5,767	6,254	4,000	12,462	23,062	51,545
Woodland Treated in Plan (ac)				220	350	570
Public Land (ac)			800	1,462	3,484	5,746
Public Land Treated in Plan (ac)				0	0	0
Other (ac)			900	53	283	1,236
Other Treated in Plan (ac)				0	0	0
Stream (mi)			38	206	231	475
Stream Treated in Plan (mi)				13	21	34

Figure 139:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10300102

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	17964
Field Border (Ft.)	53,781	Terraces (Ft.)	307,792
Filter Strip (Ac.)	171	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	1642	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	95	Critical Planting (Ac.)	76
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	457
Windbreak (Ft.)	0	Water/Sediment Basins (#)	35
waste Utilization (Ac.)	726	Wells Decomissioned (#)	14
Nutrient Management (Ac.)	1049	CRP Acres	2968
CSP Acres	0	WRP Acres	221
WHIP Acres	211	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	9	8
Conservation Reserve Program	134	67
Conservation Security Program	0	0
Wetland Reserve Program	2	3
Wildlife Hab. Incentive Program	10	12
EQIP Ground/Surface water plans	0	0

Figure 140:

Summary of FY06 319 NPS Project Evaluation Measures

Lower Missouri-Moreau

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**3**	**36**	**0**	**1**	**0**	**57,500**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**2**	**112**	**7**	**400**	**25**	**100**	**0**	**50**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**5**	**5**	**2**	**20,850**	**11**	**495**	**8**	**234**	**4,000**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**2**	**0**	**5**	**16**	**7**	**50**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**5**	**40**	**0**	**5,114**	**0**	**62**	**10**
(Best Management Practices)							

Lamine River Basin
(HUC 10300103)
Missouri Basin Name – Lamine River Basin

The Lamine River Basin, HUC 10300103, consists of all the land drained by the Lamine River and its tributaries, except that drained by the Blackwater River and its tributaries. It is a 6th order stream and covers an area of approximately 1,110 square miles in west central Missouri including portions of Pettis, Benton, Morgan, Saline, Cooper, Johnson, and Moniteau counties. The Lamine basin is unique for its combination of prairie and Ozarkian streams. Streams such as Richland Creek, Gabriel Creek, Haw Creek, and Flat Creek generally support an assemblage of aquatic life that is more characteristic of the Ozarks than Muddy Creek or Heaths Creek.

The Lamine River basin is mainly agricultural with 49% pasture or grassland, 29% row crops, 21% forest or woodland, and 1% urban. There is very little subsurface movement of water in the basin, mainly due to the presence of impermeable shales in the bedrock. The Lamine River and its tributaries can have highly variable flows, rising quickly after heavy rainfall and soon returning to low-flow levels. The only surface source of drinking water in the basin is Spring Fork Lake, on Spring Fork, and there are seven recorded springs in the basin.

Most nonpoint source pollution in the basin is from soil erosion and animal waste runoff. Levels of dissolved oxygen can be very low during periods of low flow. Of the 489.6 miles of classified stream in the basin, 417.6 miles, or 85%, are considered to be impaired habitat for aquatic life due to a large amount of surface runoff. Siltation in the main stem of the Lamine River and Heath and Muddy creeks are excessive. There are two small abandoned coal mined areas on upper Muddy Creek in Johnson County, which may cause occasional minor problems with low pH, high sulfate and high iron levels in the receiving streams.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9–element plan for Springfork Lake HUC 10300103010004
    Status - developed through G05-NPS-07
- ***TMDL*** -

#0859 Brushy Creek
Impaired by BOD, ammonia nitrogen, and NFR.
TMDL approved by EPA on February 11, 2002.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0859-brushy-0855-muddy-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0859-brushy-0855-muddy-ck-info.pdf

#0865 Flat Creek
Impaired by sediment.
TMDL approved by EPA on November 22, 2006.
TMDL http://www.epa.gov/region07/water/pdf/flat_creek_tmdl_112206.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf

#0883 Gabriel Creek
Impaired by BOD and NFR.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0883-gabriel-ck-info.pdf

#0875 Lake Creek
Impaired by sediment.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
#0847 Lamine River
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
#0856 Little Muddy Creek
Impaired by temperature.
TMDL approved by EPA on January 12, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0856-little-muddy-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0856-3490-little-muddy-ck-trib-info.pdf
#3490 Little Muddy Creek Tributary
Impaired by temperature.
TMDL approved by EPA on January 12, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0856-little-muddy-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0856-3490-little-muddy-ck-trib-info.pdf
#0857 Long Branch
Impairment unknown.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/unknowns-info.pdf
#0855 Muddy Creek
Impaired by BOD.
TMDL approved by EPA on February 11, 2002.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0859-brushy-0855-muddy-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0859-brushy-0855-muddy-ck-info.pdf
#9004 Sewer Branch
Impaired by low DO.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/9004-sewer-br-info.pdf
#7187 Spring Fork Lake
Impaired by nutrients.
TMDL approved by EPA on July 20, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/7187-spring-fk-lk-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7187-spring-fork-lk-info.pdf

- ***Watershed Groups Formed*** -
  - Sedalia Watershed Steering Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 1
- ***Groundwater-Level Observation Well Network*** – Sedalia (Pettis County), Dresden School (Pettis County), Dresden (Pettis County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Spring Fork Flat Creek, and
  - Turkey Creek

Figure 141: Number of Volunteer Water Quality Sampling Events Conducted in 10300103 Lamine River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	4	0	3
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Springfork Lake and Wellhead Protection (G05-NPS-07)
- ***AgNPS SALT Project***
  - Camp Branch/Basin Fork (SN025)
  - Muddy Creek (SN063)

Figure 142: AgNPS SALT Project Plan Goals for HUC 10300103

Watershed Name	Camp Branch & Basin Fork	Muddy Creek	Total
Project #	SN025	SN063	
Watershed Size (ac)	28,750	68,690	97,440
Cropland (ac)	11,500	23,902	35,402
Cropland Treated in Plan (ac)		10,036	10,036
Pasture/Hayland (ac)	12,938	29,825	42,763
Pasture/Hayland Treated in Plan (ac)		2,339	2,339
CRP Land (ac)		500	500
CRP Treated in Plan (ac)		0	0
Urban (ac)	1,438	6,154	7,592
Urban Treated in Plan (ac)		0	0
Woodland (ac)	2,875	8,062	10,937
Woodland Treated in Plan (ac)		144	144
Public Land (ac)		247	247
Public Land Treated in Plan (ac)		0	0
Other (ac)		0	0
Other Treated in Plan (ac)		0	0
Stream (mi)		41	41
Stream Treated in Plan (mi)		13	13

Figure 143: NRCS and Partner Contributions: HUC 10300103
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

HUC 8 - 10300103

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	9050
Field Border (Ft.)	4,010	Terraces (Ft.)	196,252
Filter Strip (Ac.)	10	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	77	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	154	Critical Planting (Ac.)	33
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	5
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	187	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	6799	CRP Acres	992
CSP Acres	0	WRP Acres	358
WHIP Acres	254	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	11	6
Conservation Reserve Program	39	21
Conservation Security Program	0	0
Wetland Reserve Program	0	1
Wildlife Hab. Incentive Program	3	4
EQIP Ground/Surface water plans	0	0

Figure 144:

Summary of FY06 319 NPS Project Evaluation Measures

Lamine

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**1**	**16**	**1**	**1**	**1**	**7,025**	**1**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**1**	**1**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**14**	**42**	**2**	**6**	**3**	**150**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**6**	**20**	**3**	**75**	**1**	**6**	**13**	**136**	**2,000**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**1**	**2**	**30**	**2**	**2**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**8**	**9**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(Best Management Practices)							

Blackwater River Basin
(HUC 10300104)
Missouri Basin Name – Blackwater River Basin

The Blackwater River Basin, HUC 10300104, occupies portions of five counties: Johnson, Lafayette, Saline, Pettis and Cooper. The Blackwater River originates in Johnson County and flows in a northeasterly direction. A main tributary to Blackwater River, Davis Creek originates in Lafayette County and flows eastward to joins the Blackwater River in Pettis County near the Pettis and Saline county line. The Blackwater River then continues eastward where the Salt Fork tributary empties into it just before reaching the Cooper County line. The Blackwater River empties into the Lamine River in Cooper County.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Concordia – Edwin A. Pape Lake Watershed Management Plan
    http://www.mowin.org/Training/WRAS/concord.pdf
  - 9-element plan being written for Higginsville Lake, HUC 10300104060003
    Status - being developed through G00-NPS-12
  - 9-element plan being written for Concordia Lake, HUC 10300104050004
    Status - being developed through G00-NPS-12
  - Higginsville City Lake Watershed Management Plan
    http://www.ctic.purdue.edu/kyw/tmdl/TipsAndHints/PlanIndex.html
- ***TMDL*** –

  #9012 Davis Creek
  Impaired by low DO.
  TMDL approved by EPA on August 13, 2003.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0912-davis-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0912-davis-ck-info.pdf

  #7196 Knob Noster State Park Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #0921 South Fork Blackwater River
  Impaired by sediment.
  TMDL approved by EPA on November 15, 2006.
  TMDL http://www.epa.gov/region07/water/pdf/south_fork_blckwtr_river_final_111506.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
- ***Watershed Groups Formed-***
  Concordia – Edwin A. Pape Lake Water Resources Needs Committee
  Higginsville City Lake - Watershed Steering Committee
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*

  City of Higginsville (PWSSID # 1010363)
  Missouri River Intake
  Higginsville Lake

  City of Concordia (PWSSID # 1010184)
  E.A. Pape Lake

  City of Leeton (PWSSID # 1010460)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** – 1
- ***Groundwater-Level Observation Well Network*** - Warrensburg (Johnson County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project***
  - Finney Creek (SN037)

Figure 145: AgNPS SALT Project Plan Goals for HUC 10300104

Watershed Name	Finney Creek
Project #	SN037
Watershed Size (ac)	34,388
Cropland (ac)	24,000
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	6,974
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	2,063
Urban Treated in Plan (ac)	
Woodland (ac)	1,243
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	
Other (ac)	108
Other Treated in Plan (ac)	
Stream (mi)	
Stream Treated in Plan (mi)	

Figure 146:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10300104

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	8239
Field Border (Ft.)	53,186	Terraces (Ft.)	790,647
Filter Strip (Ac.)	25	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	141	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	168	Critical Planting (Ac.)	21
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	23
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	187	Wells Decomissioned (#)	3
Nutrient Management (Ac.)	6799	CRP Acres	1939
CSP Acres	1562	WRP Acres	350
WHIP Acres	519	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	6	1
Conservation Reserve Program	147	64
Conservation Security Program	6	13
Wetland Reserve Program	2	3
Wildlife Hab. Incentive Program	2	3
EQIP Ground/Surface water plans	1	0

Figure 147. Public Drinking Water Program's CREP Grant for HUC 10300104.

PWS	Lake Name	Grant Accepted	AWARD $	Acres (CRP1)	old crop acres	% enrolled	# of contracts
Concordia	Edwin A. Pape Lake	19-Sep-01	$116,303.00	831.9	2951.00	28.19%	16
Higginsville	Higginsville City Lake	08-Nov-01	$17,618.05	143.8	1818.10	7.91%	3

Lower Missouri River Basin
(HUC 10300200)
Missouri Basin Name – Missouri River Mainstem - Hermann to St. Louis

The Missouri River Mainstem from Hermann to St. Louis, HUC 10300200, lies in the eastern Missouri counties of Audrain, Callaway, Montgomery, Gasconade, Warren, Franklin, St. Charles, and St. Louis. The Missouri River runs through the middle of the basin from west to east. The major tributaries that drain into the Missouri River are Loutre River, Charrette Creek, St. John's Creek, Boeuf Creek and Big Berger Creek. Creve Couer, Callaway and Sherwood Lakes are some of the larger lakes in the watershed that are associated with the river system. The western portion of the basin is primarily rural and the eastern is heavily urbanized by St. Louis and adjoining areas.

Nonpoint source pollution results from farming practices in the western portion of the basin and urban storm water and associated pollutants in the eastern portion.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL -***

  #1605 Femme Osage Creek (also known as Femme Osage Slough)
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #1604 Missouri River
  Impaired by chlordane and PCBs.
  TMDL approved by EPA on November 3, 2006.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/0226-0356-0701-1604-missouri-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/0226-0356-0701-1604-missouri-r-chlor-pcb-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Wellsville (PWSSID # 6010848)
  Wellsville City Lake
  Sportsman Lake

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 12
- ***Groundwater-Level Observation Well Network*** – none

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Boeuf Creek,
  - Bonhomme Creek,
  - Callaway Fork,
  - Creve Coeur Creek,
  - Little Femme Osage Creek,
  - Missouri River,
  - Unnamed Tributary to Caulk's Creek,
  - Unnamed Tributary to Creve Coeur Creek, and
  - Unnamed Tributary to Missouri River.

Figure 148: Number of Volunteer Water Quality Sampling Events Conducted in 10300200 Lower Missouri River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	13	14	13
2	4	5	4
3	0	0	0
4	0	1	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Big River Stewardship and Education Initiative (G06-NPS-05)
  - Clean Water Education & Resources Project (G06-NPS-22)
- ***AgNPS SALT Project –***
  - Charrette Creek (SN054)

Figure 149: AgNPS SALT Project Plan Goals for HUC 10300200

Watershed Name	Charrette Creek
Project #	SN054
Watershed Size (ac)	90,562
Cropland (ac)	22,094
Cropland Treated in Plan (ac)	11,047
Pasture/Hayland (ac)	5,975
Pasture/Hayland Treated in Plan (ac)	2,987
CRP Land (ac)	1,326
CRP Treated in Plan (ac)	0
Urban (ac)	24,358
Urban Treated in Plan (ac)	0
Woodland (ac)	34,636
Woodland Treated in Plan (ac)	20,781
Public Land (ac)	1,408
Public Land Treated in Plan (ac)	0
Other (ac)	765
Other Treated in Plan (ac)	0
Stream (mi)	298
Stream Treated in Plan (mi)	0

Figure 150:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 10300200

Contour buffer Strips (Ac.)	2	Diversion (Ft.)	1490
Field Border (Ft.)	58,014	Terraces (Ft.)	17,380
Filter Strip (Ac.)	101	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	501	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	26	Critical Planting (Ac.)	37
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	25
Windbreak (Ft.)	0	Water/Sediment Basins (#)	5
waste Utilization (Ac.)	0	Wells Decomissioned (#)	2
Nutrient Management (Ac.)	828	CRP Acres	1903
CSP Acres	0	WRP Acres	52
WHIP Acres	18	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	3	2
Conservation Reserve Program	66	42
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Hab. Incentive Program	4	1
EQIP Ground/Surface water plans	0	0

Figure 151: Public Drinking Water Program's CREP Grant for HUC 10300200.

PWS	Lake Name	Grant Accepted	AWARD $	Acres (CRP1)	old crop acres	% enrolled	# of contracts
Wellsville	Sportsmans Lake	19-Jul-02	$4,940.47	48.7	22.20	219.37%	1

Beaver Reservoir
(HUC 11010001)
Missouri Basin Name – Table Rock Lake Basin

Beaver Reservoir basin, HUC 11010001, is also called Table Rock Lake Basin, which covers portions of Taney, Stone and Barry Counties. Table Rock Lake created by the damming of the White River in Taney County covers from 43,000 to 52,000 acres and is one of the most popular tourist destinations in Missouri with visitor use of between 30 and 40 million hours per year. A large increase in permanent residents and businesses is also occurring. The Table Rock Lake basin is part of the White River basin, which covers 5,184 square miles of Missouri and Arkansas. There are three notable springs in the watershed. Table Rock Lake is designated for livestock & wildlife watering, aquatic life, whole body contact recreation, drinking water supply, and secondary contact recreation.

Localized, excessive eutrophication and the resulting increases in phytoplankton and lower water clarity in Table Rock Lake have been a cause for concern. Nonpoint source pollution contributing to these problems comes mainly from residential septic systems and livestock and poultry waste.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL***
  #7313 Table Rock Lake
  Impaired by nutrients.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7313-table-rock-lk-info.pdf
- ***Watershed Groups Formed -***
  Table Rock Lake Shoreline Cleanup Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Landowner Outreach Project (G05-NPS-16)
  - Upper White River Watershed Integrated Economic and Environmental (G05-NPS-09)
- ***AgNPS SALT Project*** - none

Figure 152:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010001

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	3	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

James River Basin
(HUC 11010002)
Missouri Basin Name – James River Basin

The James River Basin, HUC 11010002, is a major tributary to the White River and its geology is characterized by karst which creates a terrain dominated by sinkholes, losing streams, caves and springs. The basin includes all of the land drained by the unimpounded portions of the James River and all of its tributaries, an area of 1,512 square miles. The basin is located in southwest Missouri in portions of Webster, Greene, Christian, Stone, Wright, Douglas, Lawrence, and Barry counties. The James River flows nearly 100 miles from Webster County to its mouth in Table Rock Lake. Major tributaries of the James River within the basin include Crane Creek, Flat Creek, Finley Creek, Panther Creek, Pearson Creek and Wilson Creek.

Approximately 30% of the land cover within the James River basin is hardwood forest, 63% is agricultural, and 7% is urban. Springfield is the largest city in the basin but population growth and land use changes from rural to urban are rapidly occurring south of Springfield. Potential sources of nonpoint pollution in the basin include: animal agriculture, sedimentation from erosion, sludge application from sewage treatment facilities, coal pile runoff, seepage from septic tanks, and runoff from urban areas. Both urban and rural phosphorus sources are significant.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy written for the 8-digit HUC
    Status - substantially implemented through G02-NPS-01.
  - 9–element plan being written for Finley Creek, HUC 1101000203
    Status - being developed.
  - 9-element plan being written for Wards Branch, HUC 11010002020002
  - Status - being developed
  - 9–element plan being written for Middle James River, HUC 1101000202001, 1101000202002, 1101000202003 and Finley Creek , HUC 11010002030004
    Status - being developed.
- ***TMDL*** –

#2347 James River
Impaired by nutrients.
TMDL approved by EPA on May 7, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-tmdl.pdf
TMDL update approved by EPA on December 1, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-update-12-04.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2347-2362-2365-james-r-info.pdf
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#2362 James River
Impaired by nutrients.
TMDL approved by EPA on May 7, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-tmdl.pdf
TMDL update approved by EPA on December 1, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-update-12-04.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2347-2362-2365-james-r-info.pdf
Impaired by mercury.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

#2365 James River
Impaired by nutrients.
TMDL approved by EPA on May 7, 2001.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-tmdl.pdf
TMDL update approved by EPA on December 1, 2004.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2347-2362-2365-james-r-update-12-04.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2347-2362-2365-james-r-info.pdf

#2373 Pearson Creek
Impaired by unknown pollutant(s).
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2373-pearson-ck-info.pdf

#7313 Table Rock Lake
Impaired by nutrients.
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7313-table-rock-lk-info.pdf

#2375 Wilsons Creek
Impaired by unknown pollutant(s).
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2375-wilsons-ck-info.pdf

- ***Watershed Groups Formed*** -
  James River Rescue Planning Committee
  Ward Branch Technical Advisory Committee
  Ward Branch Advisory Committee
  Watershed Coordinating Committee
  Missouri Watershed Modeling Group
  Habitat Low Impact Development Site Planning Committee
  Habitat Low Impact Development Landscape Committee
  Low Impact Development Technical Stormwater Demonstration Committee
  James River Stormwater Project Advisory, Technical & Stakeholders Committees
  Finley River NAIP Steering Committee
  Finley River Watershed Management Plan Stakeholder Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 10
- ***Groundwater-Level Observation Well Network*** – Springfield (Greene County); Ozark (Christian County).

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Crane Creek,
  - Finley Creek,
  - Flat Creek,
  - Galloway Creek,
  - James River,
  - Jones Spring,
  - Jordan Creek,
  - Pearson Creek,
  - South Creek, and
  - Wilsons Creek.

Figure 153: Number of Volunteer Water Quality Sampling Events Conducted in 11010002 James River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	10	5	5
2	3	55	2
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - James River Watershed Project (G02-NPS-01)
  - Community On-Site Wastewater and Stormwater Program (G04-NPS-18)
  - Ward Branch Preservation, Restoration and Enhancement (G04-NPS-24)
  - Upper White River Watershed Integrated Economic and Environment (G05-NPS-09)
  - Landowner Outreach Project (G05-NPS-16)
  - Habitat for Humanity Low Impact Development (G05-NPS-15)
  - Sources & Reduction of Stormwater Runoff in the James River Basin (G06-NPS-15)

- ***AgNPS SALT Project –***
  - Crane Creek (SN039)
  - James River Headwaters (SN041)
  - Flat Creek (SN055)

Figure 154: AgNPS SALT Project Plan Goals for HUC 11010002

Watershed Name	Crane Creek	James River Headwaters	Flat Creek	Total
Project #	SN039	SN041	SN055	
Watershed Size (ac)	53,060	75,356	72,900	201,316
Cropland (ac)	500	1,670	2,190	4,360
Cropland Treated in Plan (ac)			250	250
Pasture/Hayland (ac)	41,730	45,605	57,009	144,344
Pasture/Hayland Treated in Plan (ac)			16,085	16,085
CRP Land (ac)			15	15
CRP Treated in Plan (ac)			0	0
Urban (ac)	200	1,100	1,942	3,242
Urban Treated in Plan (ac)			0	0
Woodland (ac)	9,000	25,641	11,754	46,395
Woodland Treated in Plan (ac)			500	500
Public Land (ac)	730	840	80	1,650
Public Land Treated in Plan (ac)			0	0
Other (ac)	900	500	0	1,400
Other Treated in Plan (ac)			0	0
Stream (mi)	100	477	79	656
Stream Treated in Plan (mi)			12	12

Figure 155: NRCS and Partner Contributions: HUC 11010002
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	20	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	77	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	1420	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	902	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	854	CRP Acres	52
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	4	2
Conservation Reserve Program	2	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Figure 156:

Summary of FY06 319 NPS Project Evaluation Measures

James

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**6**	**61**	**2**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**2**	**50**	**1**	**35**	**2**	**135**	**8**	**3,540**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**12**	**206**	**2**	**3,200**	**37**	**3,740**	**9**	**338**	**4,000**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**17**	**36**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**7**	**0**	**816**	**35**	**0**	**0**	**0**
(Best Management Practices)							

Bull Shoals Lake Basin
(HUC 11010003)
Missouri Basin Name – Bull Shoals Lake Basin

The Bull Shoals Lake Basin, HUC 11010003, includes Lake Taneycomo, which covers 1,730 acres, and Bull Shoals Lake, which covers 45,000 acres with approximately 740 miles of shoreline. The upper 9,000 acres of the Bull Shoals basin lies in Missouri, and the remainder lies in Arkansas. Missouri counties within this watershed are portions of Wright, Stone, Ozark, Taney, Douglas, Christian, and Webster. These lakes are designated for livestock & wildlife watering, aquatic life, whole body contact recreation, secondary contact recreation, and drinking water supply. In addition, Lake Taneycomo is designated as a cold water fishery.

The Lake Taneycomo sub-watershed is estimated at 93% forest, 4% pasture, and 3% urban. Lake Taneycomo supports a large rainbow trout fishery and in the surrounding hills, Branson, Missouri, is one of the largest tourist destinations in the Midwest. Increasing human population and land use changes in the basin present challenges to local and state governments trying to protect the lake for its recreational potential and drinking water supply. The Bull Shoals Lake sub-basin is estimated at 85% forest and 15% pasture. The upper portion of Bull Shoals Lake lies in Missouri and the remainder in Arkansas. The lake is larger and has much less development than Lake Taneycomo. Water quality in the lake and its tributary streams is very good.

Significant nonpoint sources include storm water runoff from urban areas. Major pollutants from these sources include nitrogen, phosphorus, sediment, and bacteria. Urban runoff can carry heavy metals or toxic organics. Other potential nonpoint sources also include sedimentation from erosion in disturbed watersheds, sludge application from sewage treatment facilities, and seepage from septic tanks. Continuing urban and suburban development in the watershed will increase sewage loads and storm water runoff problems in these lakes and area streams. Because of the rapid pace of development and steep slopes in the Branson area, soil erosion associated with land clearing for development is one of the largest nonpoint source problems in the area of the Lake Taneycomo sub-watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** –
  #7314 Lake Taneycomo
  Impaired by low dissolved oxygen
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7314-lk-taneycomo-info.pdf
- ***Watershed Groups Formed -***
  Lake Taneycomo Stakeholders Group
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Ava (PWSSID # 5010040)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 6
- ***Groundwater-Level Observation Well Network*** - Branson (Taney County), Cooper Creek (Taney County), Theodosia (Ozark County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bull Creek and
  - Swan Creek.

Figure 157: Number of Volunteer Water Quality Sampling Events Conducted in 11010003 Bull Shoals Lake Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	4	16	1
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Lake Taneycomo Watershed Mapping and Boater Education Project (G05-NPS-15)
  - Table Rock Lake 2005 Public Involvement/Education Campaign (G05-NPS-20)
  - Upper Beaver and Cowskin Creek Water Quality Project (G05-NPS-21)
  - South Bull Shoals Nutrient Management Project (G05-NPS-27)
  - Swan and Beaver Creek Stream Protection Project (G06-NPS-01)
- ***AgNPS SALT Project -***
  - South Bull Shoals (SN052)
  - Beaver Creek (SN067)

Figure 158: AgNPS SALT Project Plan Goals for HUC 11010003

Watershed Name	South Bull Shoals	Beaver Creek	Total
Project #	SN052	SN067	
Watershed Size (ac)	55,386	89,495	144,881
Cropland (ac)	500	150	650
Cropland Treated in Plan (ac)	0	0	0
Pasture/Hayland (ac)	18,184	31,308	49,492
Pasture/Hayland Treated in Plan (ac)	5,000	3,600	8,600
CRP Land (ac)	0	0	0
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	640	100	740
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	22,713	25,984	48,697
Woodland Treated in Plan (ac)	2,000	2,550	4,550
Public Land (ac)	7,556	29,179	36,735
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	5,793	2,774	8,567
Other Treated in Plan (ac)	0	0	0
Stream (mi)	28	56	84
Stream Treated in Plan (mi)	10	15	25

Figure 159:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010003

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	70	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	5
Nutrient Management (Ac.)	3768	CRP Acres	92
CSP Acres	0	WRP Acres	0
WHIP Acres	363	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	5	3
EQIP Ground/Surface water plans	0	0

Figure 160:

Summary of FY06 319 NPS Project Evaluation Measures

Bull Shoals Lake

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**9**	**65**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**1**	**29**	**3**	**77**	**0**	**0**	**0**	**0**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**34**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(Best Management Practices)							

North Fork White River Basin
(HUC 11010006)
Missouri Basin Name – North Fork White River Basin

The North Fork White River Basin, HUC 11010006, occupies approximately 1,389 square miles in parts of six counties in the southern Missouri Ozarks - Douglas, Howell, Ozark, Texas, Webster, and Wright. The North Fork Watershed in Missouri constitutes approximately 76% of the total area of the North Fork Watershed with the remainder in Arkansas. The North Fork White River originates in the vicinity of Mountain Grove in southeastern Wright County. The river flows in a general southerly direction across Douglas and Ozark counties for 67 miles before emptying into Norfork Reservoir (22,000 acres) near Tecumseh, Missouri. The North Fork White River is joined by Bryant Creek, its largest tributary, approximately one-half mile north of Tecumseh. Bryant Creek flows southeasterly across Douglas and Ozark counties for 71 miles before emptying into the North Fork White River.

Caves, springs, losing streams, and sinkholes are common in the watershed, due to the highly karst nature of its topography. There are 283 springs within the watershed as determined from USGS 7.5-minute topographic maps. The largest of these springs are Double (Rainbow) and North Fork Springs, which emerge close together on the North Fork White River.

Land use/land cover within the North Fork Watershed primarily consists of grassland/cropland (37.5%) and forest/woodland (61.9%). Urban areas make up 0.4% of the watershed. The greatest nonpoint source pollution threat in is the potential contamination of the groundwater system. Seventy-four percent of the water withdrawn within the watershed comes from the groundwater system.

Water quality within the North Fork Watershed is relatively good; however periodically high fecal coliform levels, nutrient loading, and sediment/gravel deposition are threats to water quality. Gravel dredging, indiscriminate land clearing, and the presence of livestock in riparian zones for extended periods of time are some causes of the water quality problems. In addition, the potential contamination of the ground water system by septic systems as well as municipal discharges to losing streams is also of concern. No streams within the North Fork Watershed are designated for use as a drinking water supply.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #7316 Noblett Lake
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Norwood (PWSSID # 5010585)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 3
- ***Groundwater-Level Observation Well Network*** – Norwood (Wright County)

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bennetts Bayou,
  - North Fork White River, and
  - Rippee Creek.

Figure 161: Number of Volunteer Water Quality Sampling Events Conducted in 11010006 North Fork White River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	4	2	2
2	2	2	2
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects***
  - Our Watersheds, Our Homes: Building on the Watershed Atlas Concept (G04-NPS-17)
- ***AgNPS SALT Project*** – none

Figure 162:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010006

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	97	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	253	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	1	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	6	4
EQIP Ground/Surface water plans	0	0

Black River Watershed
(HUC 11010007)
Missouri Basin Name – Black River Basin

The Upper Black River basin, HUC 1101007, originates in Reynolds and Iron counties, Missouri, and flows south through Wayne and Butler counties and into Arkansas. Also included in this watershed, are portions of Dent, Ripley, Carter, and Shannon counties. The Black River drains 1,756 square miles in Missouri. The basin lies in the Ozark Plateau. A large portion of the basin forested with much of the land in public ownership. Soils in the basin are primarily suited for trees and are considered highly erodible. There are excessive amounts of gravel bedload in the stream channel.

Basin streams generally exhibit good water quality and most streams are classified as full use attainment. In the upper subbasin, Logan Creek, Clearwater Lake, the Black River, and all three forks of the Black River are designated for whole-body contact recreation. Two reservoirs, Clearwater Lake and Lower Taum Sauk Lake, affect stream flows and fish movement.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – NRCS Rapid Watershed Assessment includes planning aspects at the HUC 8 level.
- ***TMDL*** –

  #2769 Black River
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #7326 Clearwater Reservoir
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #2814 Main Ditch
  Impaired by BOD, VSS, and low DO.
  TMDL approved by EPA on December 19, 2005.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2814-main-ditch-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2814-main-ditch-info.pdf

  #2786 McKenzie Creek
  Impaired by BOD.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2786-mckenzie-ck-info.pdf

  #2787 McKenzie Creek
  Impaired by naturally low pH.
  TMDL approved by EPA on November 15, 2004.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2787-mckenzie-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2787-mckenzie-ck-info.pdf

  #2755 West Fork Black River
  Impaired by nutrients.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2755-w-fk-black-r-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 8
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Cane Creek,
  - McKenzie Creek, and
  - Middle Fork Black River.

Figure 163: Number of Volunteer Water Quality Sampling Events Conducted in 11010007 Upper Black River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	0	2
2	0	0	0
3	1	1	1
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 164:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010007

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	4,650	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	16	Critical Planting (Ac.)	1
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	41
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	292	Wells Decomissioned (#)	1
Nutrient Management (Ac.)	5244	CRP Acres	306
CSP Acres	0	WRP Acres	0
WHIP Acres	572	EQIP Grd/surf Water Acres	894

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	3	8
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Hab. Incentive Program	1	2
EQIP Ground/Surface water plans	4	8

Current River Basin
(HUC 11010008)
Missouri Basin Name – Current River

The Current River Basin, HUC 11010008, drains a land area of approximately 2,621 square miles in portions of 9 counties in Missouri, and 2 counties in Arkansas. These counties include Texas, Dent, Reynolds, Shannon, Howell, Oregon, Carter, Butler, and Ripley in Missouri; and Randolph and Clay in Arkansas. Most of the watershed (95.9%) lies within Missouri. The Jacks Fork River drains approximately 18% of the Current River Watershed, which flows into the Current River approximately five air miles east-northeast of Eminence, Missouri. The Current River is formed by the confluence of Pigeon Creek and the Montauk Spring complex near Montauk, Missouri. From its beginning, the river flows approximately 184 miles in a southeasterly to south direction before flowing into the Black River near Pocahontas, Arkansas.

A combination of climate and geology has created a karst landscape in the watershed characterized by a close interaction between groundwater and surface water systems through sinkholes, losing streams, and springs. Dye trace data for the Current River Watershed indicates the watershed receives substantial amounts of ground water from neighboring watersheds; the most notable example is the Big Spring recharge area. Much of this recharge area is located in the Eleven Point River Watershed.

There are approximately 197 third order and larger streams within the watershed. The Current River is a seventh order stream. An estimated 678 stream miles in the watershed have permanent water. Approximately 98 miles of channelized stream exists within the Current River with most of the areas located in the lowlands of the southeast corner of the watershed. The watershed is 80% forested, and 16% grasslands with approximately 32% (420,576 acres) of land under public ownership. The United States Forest Service (USFS) holds the largest amount of publicly-owned land, totaling 235,279 acres.

Overall water quality within the watershed appears to be relatively good with a diverse biotic community. Nonpoint source water pollution problems in this watershed, include large numbers of livestock in riparian zones for extended periods of time, private septic system failure, improper sand and gravel removal and poor land use practices such as indiscriminate land clearing. These can result in periodic high fecal coliform levels, nutrient loading, and increased sediment deposition.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - 9-element plan being written for Jacks Fork, HUC 1101000805
    Status is being developed through G00-NPS-12
    - NRCS Rapid Watershed Assessment includes planning aspects for the entire HUC 8

- ***TMDL*** –
  #2681 Jack's Fork River
  Impaired by fecal coliform.
  TMDL approved by EPA on January 21, 2004.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2681-jacks-fork-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2681-jacks-fk-r-info.pdf
- ***Watershed Groups Formed*** -
  - Jack's Fork Watershed Steering Committee
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 16
- ***Groundwater-Level Observation Well Network*** – Naylor (Ripley County); Big Spring (Carter County); Akers (Shannon County)
- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Big Creek,
  - Blair Creek,
  - Little Black River,
  - Logan Creek, and
  - Pine Creek.

Figure 165: Number of Volunteer Water Quality Sampling Events Conducted in 11010008 Current River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	3	1	3
2	2	2	2
3	1	1	1
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects –***
  - Our Watersheds, Our Homes: Building on the Watershed Atlas Concept (G04-NPS-17)
  - Educating Canoeists on the Jack's Fork (G05-NPS-32)
- ***AgNPS SALT Project*** - none

Figure 166: NRCS and Partner Contributions: HUC 11010008
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	59	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	24
Windbreak (Ft.)	2612	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	292	CRP Acres	809
CSP Acres	0	WRP Acres	0
WHIP Acres	1312	EQIP Grd/surf Water Acres	294

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	14	22
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Hab. Incentive Program	5	7
EQIP Ground/Surface water plans	3	4

Figure 167:

Summary of FY06 319 NPS Project Evaluation Measures

Current

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**
(Total Maximum Daily Loads)				

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**0**	**0**	**0**	**0**	**0**	**0**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**0**	**0**	**0**	**0**	**0**	**0**	**0**
(Best Management Practices)							

Lower Black River Basin
(HUC 11010009)
Missouri Basin Name – Fourche Creek Basin

The Lower Black River basin, HUC 11010009, lies mainly within the southwest corner of Ripley County with a small fraction of the watershed in Oregon County. Fourche Creek and its tributaries are the classified water bodies within the Missouri portion of the basin. Fourche Lake is located in the main stem of Fourche Creek. The basin is 55% forested and 45% row crop or pasture. Wetland drainage, timber clearing, and flood control projects have converted the southern and eastern sections of the watershed into a vast agricultural area. Nonpoint source pollution comes from agricultural runoff. In the southeast portion of the basin, approximately 30% of the wells exceed nitrate water quality standards. Flow in the lower Black River is primarily regulated by water released through Clearwater Lake.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** - none
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** - none
- ***AgNPS SALT Project*** - none

Figure 168:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010009

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	131
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Spring River Basin
(HUC 11010010)
Missouri Basin Name – Spring River Basin (Howell/Oregon counties)

The Spring River Basin, HUC 11010010, is located southwest of the Eleven Point Watershed and is bounded to the west by the North Fork White River Watershed. The Spring River Basin in Missouri occupies 480.3 square miles. It constitutes approximately 39% of the total area of the Spring River Watershed with the remainder in Arkansas and of which the Eleven Point River is also a tributary. The basin occupies parts of Howell and Oregon counties in Missouri. Caves, springs, losing streams, and sinkholes are common in the watershed. The watershed consists of three major streams, which generally flow in a south to southeast direction and cross the Missouri/Arkansas border to join the Spring River in Arkansas. These streams include the South Fork Spring River, Myatt Creek, and Warm Fork Spring River. The longest of these tributaries in Missouri is the Warm Fork Spring River, which originates in the headwaters as Howell Creek within the city limits of West Plains, Missouri. There have been no significant channel alterations within the watershed.

Land use/land cover primarily consists of grassland/cropland (49.1%) and forest/woodland (48.3%). Urban areas make up 2.4% of the watershed. West Plains is the largest population center in south central Missouri and a hub of transportation. Approximately 2% of the watershed is in public ownership, nearly all of which is managed by the Missouri Department of Conservation. Nonpoint source pollution results from poor land use practices, gravel dredging, large numbers of cattle, and runoff as well as sewage effluent associated with developed and urbanized areas. These sources all contribute to water quality problems in both surface water and ground water. Nearly all water for domestic use is obtained from ground water systems within the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** -
  #2582 Howell Creek
  Impaired by chlorine.
  TMDL approved by EPA on January 31, 2001.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2582-howell-ck-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2582-howell-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** – West Plains (Howell County)
- ***Stream Teams*** - No water bodies were monitored between October 1, 2005 and September 30, 2006, in this watershed.

Active Nonpoint Source Projects

- ***319 NPS Projects*** -
  - Our Watersheds, Our Homes, Building on the Watershed Atlas (G04-NPS-17)
  - West Plains Urban Stormwater Initiative (G06-NPS-19)
- ***AgNPS SALT Project*** – none

Figure 169:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010010

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	99	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	1
EQIP Ground/Surface water plans	0	0

Figure 170:

Summary of FY06 319 NPS Project Evaluation Measures

Spring

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans		
Planning	**1**	**0**	**1**	**0**	**0**	**0**	**0**		
	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Tow ard TMDL's	TMDL Acres Treated					
TMDL	**0**	**0**	**0**	**0**					
(Total Maximum Daily Loads)									
	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed	
Education/Information	**3**	**3,000**	**1**	**55**	**2**	**25**	**2**	**50**	
	Reports Developed	Reports Distributed	New sletters Developed	New sletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Collected at Clean-Up Events (1)
Education/Information	**6**	**0**	**1**	**400**	**0**	**0**	**2**	**450**	**60**
	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected	
Water Quality Monitoring	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	
	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection						
Groundwater Protection	**0**	**0**	**0**						
	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built			
Agricultural	**15**	**3**	**15**	**2,990**	**0**	**2**			
	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced		
BMP	**2**	**0**	**0**	**2**	**0**	**0**	**0**		
(Best Management Practices)									

Eleven Point River Basin
(HUC 11010011)
Missouri Basin Name – Eleven Point River Basin

The Eleven Point Basin, HUC 11010011, originates near the town of Willow Springs, located in northeastern Howell County. The river flows southeasterly across northern Howell and Oregon counties and then south, crossing the Arkansas state line about 2.5 miles west of the southeast corner of Oregon County. From there it flows generally south through Randolph County, Arkansas, joining the Spring River approximately 3.7 miles above the Spring River/Black River Confluence near Black Rock, Arkansas. Major tributaries of the Eleven Point River include Middle Fork, Spring Creek, Hurricane Creek, and Fredrick Creek. Greer Spring also contributes significantly to the flow of the Eleven Point River, turning the river into a cold water stream. The Eleven Point Watershed drains approximately 1,024 square miles in portions of five counties within Missouri. These include Howell, Oregon, Ripley, Carter, and Shannon. The watersheds bordering the Eleven Point Watershed include the Jacks Fork to the north, the Current and Fourche to the east, and the North Fork White River and Spring River to the west. Many caves, springs, and losing streams are present within the watershed. This is due to the highly karst nature of its topography.

Land use/land cover within the Eleven Point Watershed is 64.9% forest/woodland, 34.4% grassland/ cropland and 0.4% urban. Approximately 22% of the watershed is in public ownership with the majority of this land managed as part of the Mark Twain National Forest.

Water quality within the Eleven Point Watershed is relatively good; however, high fecal coliform levels, nutrient loading, and sediment and gravel deposition are the most severe nonpoint source pollution threats to water quality. Poor land use practices, gravel dredging, and increasing cattle populations are the primary causes of the water quality problems. Lead prospecting has occurred throughout the watershed, and is a potential threat to water quality along with lead mining. The Eleven Point River between Thomasville and Highway 142 has been designated as a National Scenic River Area (Outstanding National Resource Water). The biotic community of the Eleven Point Watershed is diverse.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL*** –

  #2593 Eleven Point River (Oregon county)
  Impaired by mercury.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/mercury-info.pdf

  #2604 Eleven Point River (Howell county)
  Impaired by chlorine.
  TMDL approved by EPA on January 12, 2001.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2604-eleven-point-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2604-eleven-point-r-info.pdf

  #2614 Piney Creek
  Impaired by chlorine.
  TMDL approved by EPA on January 12, 2001.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/2614-piney-ck-tmdl%20.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/2614-piney-ck-info.pdf
- ***Watershed Groups Formed*** - none
- ***Source Water Protection Plans*** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 2
- ***Groundwater-Level Observation Well Network*** – none
- ***Stream Teams*** - The following water body was monitored between October 1, 2005 and September 30, 2006:
  - Eleven Point River.

Figure 171: Number of Volunteer Water Quality Sampling Events Conducted in 11010011 Eleven Point River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	1	0	1
2	0	0	0
3	0	0	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Our Watersheds, Our Homes: Building on the Watershed Atlas Concept (G04-NPS-17)
- ***AgNPS SALT Projects*** - none

Figure 172:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11010011

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	17	Critical Planting (Ac.)	11
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	19	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	61	EQIP Grd/surf Water Acres	81

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	3	2
EQIP Ground/Surface water plans	2	1

Lake O' the Cherokees
(HUC 11070206)
Missouri Basin Name – Cherokees Lake Basin

The Lake O' the Cherokees basin, HUC 11070206, has two portions in Missouri, one above the Elk River basin and one below in the southwest most corner of the state. The Missouri counties of Newton and McDonald contain portions of the watershed. The flow in the basin is westerly and the headwaters originate in several locations in Missouri and Arkansas. Big Sugar Creek and Little Sugar Creek join to form the Elk River near Pineville, Missouri, from which it flows west, terminating in Grand Lake O' the Cherokees in Oklahoma. Lost Creek and Honey Creek which are in the Lake O' the Cherokees basin are tributaries of Neosho/Grand River and originate in Missouri, then flow to the Lake O' the Cherokees.

Animal agriculture is a major enterprise in the basin. Confined animal agriculture (primarily poultry) has grown explosively in the basin since the early 1980s. Waste management and disposal at these facilities, wastewater treatment and disposal at associated processing plants, and increasing pollutants in basin streams has become a concern in the basin.

Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, free ranging livestock, animal feeding operations, road construction, and septic tanks. The Lake O' the Cherokees basin is subject to intense water-based recreational use in the warmer months. Intensive animal based agriculture and poor land use are the primary water quality related problems in the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** – none
- ***TMDL-***
  #3245 Cave Spring Branch
  Impaired by nutrients.
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/9002-cave-spring-br-info.pdf
- ***Watershed Groups Formed –***
  - Lower Shoal Creek Watershed Alliance
  - Spring River Basin Clearinghouse

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 0
- ***Groundwater-Level Observation Well Network*** - none
- ***Stream Teams*** - The Grand Lake of the Cherokee's basin was monitored between October 1, 2005 and September 30, 2006.

Figure 173: Number of Volunteer Water Quality Sampling Events Conducted in 11070206 Lake O' the Cherokees basin

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	0	0	0
2	0	0	0
3	3	5	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Education/Information to Reduce Water Pollution by Livestock Producers in SW MO (G02-NPS-11)
- ***AgNPS SALT Project*** – none

Figure 174:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11070206

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	0	Terraces (Ft.)	0
Filter Strip (Ac.)	0	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	0	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	0	CRP Acres	0
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	**Applied**
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	1	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Spring River Basin
(HUC 11070207)
Missouri Basin Name – Spring River Basin

The Spring River Basin, HUC 11070207, is located in southwest Missouri in Barry, Barton, Christian, Dade, Jasper, Lawrence, Newton, and Stone counties. The Spring River originates along the Barry-Lawrence county line south of Verona, flows west-northeast to its confluence with the North Fork Spring River east of Asbury in Jasper County and then southwest into Kansas and Grand Lake of the Cherokees in Oklahoma. Major tributaries within the basin are the North Fork Spring River, Center Creek, Turkey Creek, and Shoal Creek. Numerous smaller tributaries flow throughout the basin. The Spring River watershed totals 2,271 square miles. The total mileage of streams with permanent flow is 331 miles. Intermittent streams add another 188 miles. Several losing stream reaches and numerous springs are also located in the basin. There are six stream segments listed on the 2002 303(d) list totaling 107.5 miles.

Land use in the North Fork of the Spring River area of the basin is approximately 85% agricultural (pasture and row cropping) and 15% forested. Land use in the Spring River portion of the basin is estimated at 70% row crop and pasture and 30% forested. In the Center/Shoal Creek sub-basin, land use is approximately 52% row crop and pasture, 45% forest cover, and 3% mined lands. Stream habitat quality is fair to good throughout most of the basin. Some areas, including portions of the Capps Creek sub-basin, suffer from a severe lack of riparian vegetation. Sources of nonpoint source pollution in the basin include: runoff from mine tailings and active mining sites, livestock operations, sedimentation from erosion in disturbed watersheds, sludge application from sewage treatment facilities, seepage from septic tanks, and runoff from urban areas.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) for Upper Reach Spring River HUCs 11070207010001, 110702070004, 11070200070005, 11070207040001
    Status – being developed through G01-NPS-11
  - 9–element plan for Upper Shoal Creek HUC 11070207100001, 11070207100002, 11070207100003, 11070207030001
    Status - being developed through G02-NPS-21

- ***TMDL -***

#3203 Center Creek
Impaired by zinc.
TMDL approved by EPA on October 25, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3203-center-3216-3217-turkey-cks-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3203-center-ck-info.pdf

#3239 Clear Creek (Barry county)
Impaired by BOD, NFR, and ammonia nitrogen (nutrients).
TMDL approved by EPA on December 1, 1999.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3239-clear-creek-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3239-clear-ck-info.pdf

#3168 Douger Branch
Impaired by zinc.
TMDL approved by EPA on August 29, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3168-douger-br-final-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3168-douger-br-info.pdf
#7356 Lamar Lake
Impaired by nutrients.
TMDL approved by EPA on July 20, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/7356-lamar-lk-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/7356-lamar-lk-info.pdf
#3188 North Fork Spring River
Impaired by sediment.
TMDL approved by EPA on November 22, 2006.
TMDL http://www.epa.gov/region07/water/pdf/n_fork_spring_river_tmdl_112206.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/sediment-info.pdf
#3230 Shoal Creek
Impaired by fecal coliform.
TMDL approved by EPA on November 18, 2003.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3230-shoal-ck-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3230-shoal-ck-info.pdf
#3216 Turkey Creek
Impaired by zinc.
TMDL approved by EPA on October 25, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3203-center-3216-3217-turkey-cks-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3216-3217-turkey-ck-info.pdf
#3217 Turkey Creek
Impaired by zinc.
TMDL approved by EPA on October 25, 2006.
TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3203-center-3216-3217-turkey-cks-tmdl.pdf
Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3216-3217-turkey-ck-info.pdf

- ***Watershed Groups Formed*** –
  Lamar Lake Community Group
- ***Source Water Protection Plans -*** http://maproom.missouri.edu/swipmaps/pwssid.htm *(enter PWSSID)*
  City of Lamar (PWSSID # 5010446)
  Lamar City Lake
  City of Oronogo (PWSSID # 5010606)
  Groundwater

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 4
- ***Groundwater-Level Observation Well Network*** – Lamar and Golden City (Barton County), Carthage and Atlas Powder (Jasper County), Joplin (Newton County), Monett (Barry County), Aurora (Lawrence County).

- ***Stream Teams*** - The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bartholic Spring,
  - Capps Creek,
  - Cedar Creek,
  - Center Creek,
  - Elm Spring,
  - Five Mile Creek,
  - Hearrell Spring,
  - Hickory Creek,
  - McMahon Spring,
  - Shoal Creek,
  - Spring River,
  - Spring River (mill race), and
  - Turkey Creek.

Figure 175: Number of Volunteer Water Quality Sampling Events Conducted in 11070207 Spring River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	4	5	7
2	2	31	1
3	4	10	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects -***
  - Upper Reach Spring River (G01-NPS-11)
  - Education/Information to Reduce Water Pollution by Livestock Producers in SW MO (G02-NPS-11)
  - Landowner Outreach Project (G05-NPS-16)
  - Poultry Litter Fertility and Water Quality Demonstration (G05-NPS-23)
  - Elk River Watershed Poultry Manure Composting (MOA-2002)
  - Wildcat Glades Conservation and Audubon Center (G06-NPS-16)
- ***AgNPS SALT Project –***
  - Little North Fork Spring (SN068)

Figure 176: AgNPS SALT Project Plan Goals for HUC 11070207

Watershed Name	Little North Fork Spring River
Project #	SN068
Watershed Size (ac)	49,467
Cropland (ac)	21,578
Cropland Treated in Plan (ac)	8,016
Pasture/Hayland (ac)	16,665
Pasture/Hayland Treated in Plan (ac)	2,550
CRP Land (ac)	1,375
CRP Treated in Plan (ac)	0
Urban (ac)	901
Urban Treated in Plan (ac)	0
Woodland (ac)	4,913
Woodland Treated in Plan (ac)	100
Public Land (ac)	3,245
Public Land Treated in Plan (ac)	0
Other (ac)	790
Other Treated in Plan (ac)	0
Stream (mi)	194
Stream Treated in Plan (mi)	4

Figure 177: NRCS and Partner Contributions: HUC 11070207
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	22,017	Terraces (Ft.)	39,195
Filter Strip (Ac.)	5	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	16	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	82	Critical Planting (Ac.)	6
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	3
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	672	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	1236	CRP Acres	1409
CSP Acres	280	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	18	11
Conservation Reserve Program	39	21
Conservation Security Program	20	2
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	1	0
EQIP Ground/Surface water plans	0	0

Figure 178: Public Drinking Water Program's CREP Grant for HUC 10300200.

PWS	Lake Name	Grant Accepted	AWARD $	Acres (CRP1)	old crop acres	% enrolled	# of contracts
Lamar	Lamar City Lake	12-Mar-02	$6,810.81	75.6	444.60	17.00%	1

Elk River Basin
(HUC 11070208)
Missouri Basin Name – Elk River Basin

The Elk River basin, HUC 11070208, encompasses 1,032 square miles in the corners of four states, Arkansas, Kansas, Missouri, and Oklahoma. Counties that are partially or entirely within the basin are Benton County in Arkansas; Crawford County in Kansas; Barry, McDonald, and Newton counties in Missouri (866 square miles), and Delaware and Ottawa counties in Oklahoma. The basin runs in a westerly direction. It is bound to the east by the James River basin and the White River basin, bound on the north by the Shoal Creek and the Spring River basins and bound on the south and west by the Lake O' the Cherokees basin. The Elk River headwaters originate in Big Sugar Creek near Seligman, Missouri and Little Sugar Creek near Bentonville, Arkansas. These two streams merge near Pineville, Missouri, to form the Elk River. The Elk River is a sixth order stream for its entire length. Other major tributaries are Indian Creek and Buffalo Creek. The lower portion of Elk River is inundated by, and forms, the Elk River Arm of Grand Lake O' the Cherokees.

There are 234 third order and larger streams in the Elk River basin with a total stream mileage of 1,115 miles. There are 11 water body segments in this basin listed on Missouri's 1998 and 2002 303(d) list with 126.5 miles impaired by nutrients from livestock production. Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, free ranging livestock, road construction, and septic tanks. This area of Missouri has a very large concentration of poultry operations. The basin is mainly rural but some areas are rapidly developing. All classified streams in the Elk River basin are designated for aquatic life protection and livestock & wildlife watering. The permanent flowing reaches of the Elk River, Buffalo Creek, Indian Creek, Big Sugar Creek, and Lost Creek are also designated for whole body contact recreation and secondary contact recreation. The permanently flowing reaches of South Indian Creek are designated for cold water fishery.

Watershed Efforts and Ongoing Activities

Watershed Planning

- ***Watershed Management Plans*** –
  - Watershed Restoration Action Strategy (WRAS) -
    Status - substantially implemented through G00-NPS-13 and G02-NPS-21
  - 9–element plan for Elk River HUC 11070208
    Status - being developed through G00-NPS-13 and G02-NPS-21

- ***TMDL -***
  #3250 Big Sugar Creek
  #3269 Buffalo Creek
  #3273 Buffalo Creek
  #3246 Elk River
  #3256 Indian Creek
  #3249 Little Sugar Creek
  #3262 Middle Indian Creek
  #3263 Middle Indian Creek
  #3260 North Indian Creek
  #3268 Patterson Creek
  #3259 South Indian Creek
  Impaired by nutrients.
  TMDL approved by EPA on March 26, 2004.
  TMDL http://www.dnr.mo.gov/env/wpp/tmdl/3246-elk-r-tmdl.pdf
  Information Sheet http://www.dnr.mo.gov/env/wpp/tmdl/info/3246-elk-r-basin-info.pdf
- **Watershed Groups Formed** -
  - Elk River Watershed Improvement Association
- ***Source Water Protection* Plans** - none

Water Quality Monitoring

- ***Active USGS Gaging Station(s)*** - 5
- ***Groundwater-Level Observation Well Network*** - Noel (McDonald County), Longview (McDonald County)
- ***Stream Teams*** **-** The following water bodies were monitored between October 1, 2005 and September 30, 2006:
  - Bullskin Creek,
  - Elk River, and
  - Indian Creek.

Figure 179: Number of Volunteer Water Quality Sampling Events Conducted in 11070208 Elk River Basin.

Training Level	Monitoring Category		
	FY06 Invertebrate	FY06 Chemical	FY06 Visual
1	2	0	7
2	0	0	1
3	2	6	0
4	0	0	0

Active Nonpoint Source Projects

- ***319 NPS Projects***
  - Ed/Info to Reduce Water Pollution by Livestock Production in SW MO (G02-NPS-11)
  - Elk River Watershed Poultry Litter Composting (MOA-2002)
  - Elk River/Shoal Creek Water Quality Restoration Project (G02-NPS-21)
  - Innovative Demonstration for Poultry Litter Composting (Invessel composter) (G06-NPS-04)
  - Landowner Outreach Project (G05-NPS-16)

- ***AgNPS SALT Project –***
  - Indian Creek Project (SN075)

Figure 180: AgNPS SALT Project Plan Goals for HUC 11070208

Watershed Name	Indian Creek
Project #	SN075
Watershed Size (ac)	87,522
Cropland (ac)	1,700
Cropland Treated in Plan (ac)	200
Pasture/Hayland (ac)	42,040
Pasture/Hayland Treated in Plan (ac)	15,000
CRP Land (ac)	50
CRP Treated in Plan (ac)	0
Urban (ac)	2,000
Urban Treated in Plan (ac)	0
Woodland (ac)	36,612
Woodland Treated in Plan (ac)	345
Public Land (ac)	5,120
Public Land Treated in Plan (ac)	0
Other (ac)	0
Other Treated in Plan (ac)	0
Stream (mi)	46
Stream Treated in Plan (mi)	5

Figure 181:
This data table was compiled using the NRCS database at: http://ias.sc.egov.usda.gov/prsreport2006/

NATURAL RESOURCE CONSERVATION SERVICE (NRCS) AND PARTNER CONTRIBUTIONS
HUC 8 - 11070208

Contour buffer Strips (Ac.)	0	Diversion (Ft.)	0
Field Border (Ft.)	150	Terraces (Ft.)	0
Filter Strip (Ac.)	6	Lined WW or outlet (Ft.)	0
Grassed waterways (Ac.)	0	Vegetative barrier (Ft.)	0
Riparian forest buffer (Ac.)	0	Critical Planting (Ac.)	0
Stream/Shore protection (Ft.)	0	Grade Stab. Structures (#)	0
Windbreak (Ft.)	0	Water/Sediment Basins (#)	0
waste Utilization (Ac.)	548	Wells Decomissioned (#)	0
Nutrient Management (Ac.)	1716	CRP Acres	398
CSP Acres	0	WRP Acres	0
WHIP Acres	0	EQIP Grd/surf Water Acres	0

	Planned	Applied
Nutrient Plans (CNMP)	17	13
Conservation Reserve Program	0	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Hab. Incentive Program	0	0
EQIP Ground/Surface water plans	0	0

Figure 182:

Summary of FY06 319 NPS Project Evaluation Measures
Elk

Activities	Groups Formed	Meetings Held	Planning Documents	Watershed Mgmt Plans Written	Acres in Watershed Mgmt Plans	Source Water Protection Plans Written	Acres in Source Water Protection Plans
Planning	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated
TMDL	**0**	**0**	**0**	**0**

(Total Maximum Daily Loads)

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures and Factsheets Developed	Brochures and Factsheets Distributed
Education/Information	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**150**

	Reports Developed	Reports Distributed	Newsletters Developed	Newsletters Distributed	Presentations Developed	Presentation Participants	Clean-Up Events Conducted	Clean-Up Event Participants	Pounds Col at Clean- Events (
Education/Information	**2**	**40**	**3**	**750**	**1**	**25**	**0**	**0**	**0**

	Quality Assurance Protection Plans (QAPP) Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events	Samples Collected
Water Quality Monitoring	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection
Groundwater Protection	**0**	**0**	**0**

	Comprehensive Nutrient Mgmt Plans (CNMP) Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built
Agricultural	**12**	**6**	**10**	**1,500**	**5,000**	**8**

	BMP's Implemented	Acres Impacted by BMP's	Feet Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced
BMP	**16**	**0**	**130,000,000**	**25,000**	**0**	**684,000**	**741,000**

(Best Management Practices)

IV. Other Department Nonpoint Source Water Quality Accomplishments

The department programs listed below work in conjunction with the Nonpoint Source Program and impact 319 projects either through shared funding to assist the projects, by providing information for watershed management plans, or by assisting in evaluating outcomes of 319 projects.

A. Agricultural NPS SALT Program

Agricultural Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) Program information can be accessed at: http://www.dnr.mo.gov/env/swcp/service/swcpsalt.htm.

Provided by funding through half of the 1/10th of one percent Parks and Soils Sales Tax of Missouri, the AgNPS SALT program is offered through the department's Soil and Water Conservation Program. The program allows county Soil and Water Conservation Districts (SWCDs) to direct technical and financial assistance to landowners with land identified and prioritized as having water quality problems, to address agricultural nonpoint sources of pollution. Success of these projects is dependent on the cooperation of numerous partners using a variety of tools to accomplish project goals.

Further discussion and links to individual SALT projects that were active in FY2006 is provided within the individual HUC 8 watershed pages.

B. Source Water Protection

Public Drinking Water information can be accessed at:
http://www.dnr.mo.gov/env/wpp/dw-index.htm

The Safe Drinking Water Act (SDWA) Amendments of 1996 require states to implement Source Water Assessment Plans (SWAP) to better protect public drinking water from contamination. These tasks include:

- Delineate source water areas
- Inventory significant potential sources of contamination
- Determine the susceptibility of each public water supply to contamination
- Make the results available to the public

As of July 10, 2006, there are 24 surface water community water supplies (CWS) in the state that had approved Source Water Protection Plans (SWPPs), which served a population of 2,836,877. There are 17 ground water CWS in Missouri with approved SWPPs, which served a population of 278,003. The total population served by the 41 approved SWPP is 3,114,880 or about 70% of the state's population who are served by CWS. The Source Water Inventory Projects Web site http://drinkingwater.missouri.edu/swip/index.html provides information on source water assessment for Missouri's drinking water supplies.

CREP Overview
The Conservation Reserve Enhancement Program (CREP) is a voluntary land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water.

The program is a partnership among producers; tribal, state, and federal governments; and, in some cases, private groups. CREP is an offshoot of the country's largest private-lands environmental improvement program - the Conservation Reserve Program (CRP).

Like CRP, CREP is administered by USDA's Farm Service Agency (FSA). By combining CRP resources with state, tribal, and private programs, CREP provides farmers and ranchers with a sound financial package for conserving and enhancing the natural resources of farms.

CREP addresses high-priority conservation issues of both local and national significance, such as impacts to water supplies, loss of critical habitat for threatened and endangered wildlife species, soil erosion, and reduced habitat for fish populations such as salmon. CREP is a community-based, results-oriented effort centered around local participation and leadership.

Planning Efforts
There are currently 55 Source Water Protection Plans on file with the Public Drinking Water Branch of which 26 are for surface water and 29 for groundwater. Four Source Water Protection Plans were approved during FFY2006.

Further discussion and links to approved source water plan information are provided within the individual HUC 8 watershed pages.

C. Total Maximum Daily Load (TMDL) Development

Under the federal Clean Water Act, the TMDL program provides a framework for identifying and cleaning up impaired waters. Section 303(d) of the law requires states to identify all waters that are failing to meet the state's water quality standards. These waters remain impaired even though the existing regulatory and permitting requirements have been put in place. The state is required to develop a TMDL for all waters on the 303(d) list. Missouri's 2002 303(d) List can be viewed at the following URL: http://www.dnr.mo.gov/env/wpp/waterquality/2002_303d_list.pdf

The TMDL is a mathematical calculation of the amount of a specific pollutant a water body can absorb and still meet water quality standards. Each TMDL document will include allocations of the acceptable load for all sources of the pollutant. It will also include an implementation plan to identify how the load will be reduced to a level that will protect water quality. The department is currently required to develop TMDLs for 171 impaired water bodies for approval by the U.S. EPA. One hundred thirty-one have been completed and approved since 1999. The Clean Water Commission determines which water bodies will be included on the 303(d) list and submitted to EPA for

approval. Each river, stream or lake on the list will have a TMDL study done and a plan written for restoring the water to its designated use.

Information contained in a TMDL document includes:
- Location of the impaired water body,
- Identification of the pollutant(s),
- Sources of the pollutant(s),
- A calculation of the pollutant "load" that the water can absorb without becoming impaired, and
- A plan to reduce the pollutant "load" and restore the water body to meet the standards for its designated use.

TMDLs may also be used to address nonpoint sources of pollution that occur when runoff from rainwater, snowmelt, and crop irrigation carries pollutants into the water.

During Fiscal Year 2006, the EPA developed 26 TMDLs for Missouri water bodies and Missouri developed 27 for a total of 53 TMDLs approved.

Figure 183:
The following water bodies have previously approved or established TMDLs where water quality standards are now being met. Eighteen of the twenty-three water body segments listed below had TMDLs approved or established in calendar year 2006 (*from 2006 TMDL Annual Report.)*

Waterbody Name	***WBID***	***Pollutant***	***Action***	***Approved***
Big Creek (Henry Co.)	1250	Sediment	TMDL	10/13/2006
Big Creek (Iron Co.)	2916	Metals	TMDL	2/17/2006
Big Muddy Creek	0436	Sediment	TMDL	10/13/2006
Blackbird Creek	0653	Sediment	TMDL	6/27/2006
Clear Creek	1336	Sediment	TMDL	11/15/2006
Clear Creek	3239	NH3	TMDL	12/1/1999
East Fork Medicine Creek	0619	Sediment	TMDL	11/22/2006
East Fork Tebo Creek	1282	pH	TMDL	7/24/2006
Eleven Point River	2604	Chlorine	TMDL	1/12/2001
Goose Creek	2860	Nickel	TMDL	12/1/1999
Honey Creek (Henry Co.)	1251	Sulfate	TMDL	8/17/2006
Manacle Creek	0742	pH, Sulfate	TMDL	7/14/2004
Miami Creek	1299	Sediment	TMDL	11/15/2006
Middle Fork Grand River	0468	Sediment	TMDL	11/15/2006
Mississippi River	0001	Chlordane, PCBs	TMDL	11/03/2006
Mississippi River	1707	Chlordane, PCBs	TMDL	11/03/2006
Mississippi River	3152	Chlordane, PCBs	TMDL	11/03/2006
Missouri River	0226	Chlordane, PCBs	TMDL	11/03/2006

Missouri River	0356	Chlordane, PCBs	TMDL	11/03/2006
Missouri River	0701	Chlordane, PCBs	TMDL	11/03/2006
Missouri River	1604	Chlordane, PCBs	TMDL	11/03/2006
Mussel Fork Creek	0674	Sediment	TMDL	09/25/2006
West Fork Tebo Creek	1292	Sulfate	TMDL	02/12/2004

Additional information on approved TMDLs and those in progress can be viewed at the following Web site: http://www.dnr.mo.gov/env/wpp/tmdl/index.html. Further discussion and links to TMDL information for each basin in Missouri is provided in Section III, within the individual HUC 8 watershed pages.

D. Underground Storage Tanks (USTs) http://www.epa.gov/swerust1/states/mo.htm

USTs have been identified as a major source of soil and ground water contamination. According to the U.S. EPA Office of Underground Storage Tanks Corrective actions measures as of September 30, 2006, there were 10,096 active tanks, 6,593 confirmed releases, and 5,099 site clean-ups.

E. Land Reclamation Program http://www.dnr.mo.gov/env/lrp/index.html

Historically, nearly 67,000 acres have been left unreclaimed by coal-mining operations, and an estimated 40,000 acres were left abandoned through the mining of other commodities. Missouri was left with acid mine drainage, dangerous highwalls, hazardous water bodies, open wells and mine shafts, barren mine spoils, coal waste, soil erosion, stream sedimentation, and channelized streams.

The Land Reclamation Program plays an integral role in protecting and preserving Missouri's water resources. The program is responsible for regulating today's mining industry and for correcting health, safety and environmental problems associated with abandoned mines. When properly reclaimed, the land can once again be used as for a variety of uses, including agricultural and wildlife areas. Wildlife habitat remains a primary concern of the Land Reclamation Program. Whenever possible, abandoned mines are reclaimed with wetlands, native prairie grasses and trees that are part of Missouri's history. Of primary importance to this report is that reclaiming abandoned mine land protects the environment by preventing or addressing toxic or acid mine drainage, groundwater contamination and soil erosion.

F. Field Services Division

Staff of the Environmental Education Unit (EEU) in the newly formed Field Services Division (FSD) continues to function as the state coordinator for Project WET (Water Education For Teachers) and cooperates with the Division of State Parks on river based habitat restoration projects such as tree plantings. The Project WET coordinator works with entities seeking advice and help in meeting the education and outreach components of their Phase II Storm Water plans. On occasion, members of the EEU work with not-

for-profit organizations on educational initiatives concerning big rivers and their watersheds.

G. State Revolving Fund

State Revolving Fund (SRF) information can be found at:
http://www.dnr.mo.gov/env/wpp/srf/cwsrf-info.htm

The State Revolving Funds (SRF) provide low-interest loans to communities for wastewater and drinking water infrastructure projects. Projects may be new construction or the improvement or renovation of existing facilities. Various programs are listed below.

NPS Animal Waste Disposal Loan Program
This is a nonpoint source loan program designed to provide low interest financing to small producers for design and construction of animal waste treatment facilities.
http://www.dnr.mo.gov/env/wpp/srf/cwsrf-animal-loans.htm

NPS Neighborhood Improvement Loans
The SRF may finance neighborhood improvement projects if the project is a benefit to water quality and the problem is addressed in Missouri's NPS Management Plan. The Neighborhood Improvement District Act, adopted by the Missouri General Assembly in 1990, provides a framework for political subdivisions of the State to issue general obligation bonds upon a 100% petition or a majority vote (4/7 in general, municipal, or primary elections; 2/3 in special elections) of the residents in an area to form a neighborhood improvement district (NID). The SRF has financed NPS projects though the formation of a city, county, or district. These projects were the result of a cooperative effort between a county and residents within a proposed district. The city/county/ district's role was to coordinate efforts and provide engineering, inspection, and financial support. Individual members of the NID were given the choice to pay for the improvement in a lump sum or through special property tax assessments. Projects are financed for 10 to 20 years.

Brownsfield Redevelopment
SRF monies may be loaned for Brownsfield Redevelopment if the project can result in a benefit to local water quality and if the category of problem is identified in Missouri's NPS Management Plan. The SRF funds can be used in conjunction with a number of other state and federal funding sources to affect the clean up of a "Brownsfield" site, underutilized or abandoned, contaminated, industrial property. The Department of Natural Resources' Voluntary Cleanup Program provides technical oversight for Brownsfield remediation. Additional financial incentives (tax rebates or credits) can be obtained through the Missouri Department of Economic Development's Brownsfield Redevelopment Program.

Deep Water Well Drilling
This is a nonpoint source loan program for deep-water well construction required in designated areas in Jasper and Newton counties for a new public, community, or

individual water wells that are located in the designated special area. SRF monies are available at low interest to defray a portion of the cost to drill and install a deep well and to assure that the deep aquifer is protected from contaminants resident in the shallow aquifer are eligible.

Future NPS Loan Programs and Projects
On-site Wastewater Treatment Systems financing programs are in the early stages of development with the expectation of the first program loans being made in SFY 2008. These programs will provide an interest subsidy on conventional financing for resolving ongoing pollution issues resulting from failing onsite systems. Numerous other eligible projects could be financed through the SRF--agriculture best management practices, protection of wetlands and riparian corridors, landfill closures, abandoned mine land restoration, Superfund remediation, and others. Loan recipients for SRF-NPS projects may be governmental or private sector entities or individuals.

H. Water Quality Standards/Monitoring/Assessment

Water Quality Monitoring, Assessment, and Standards can be found at:
http://www.dnr.mo.gov/env/wpp/waterquality/

Water Quality Monitoring
The department monitors water quality to:

- characterize background or reference water quality conditions;
- better understand daily, flow-event, and seasonal water quality variations and their underlying processes;
- characterize aquatic biological communities and habitats and to distinguish between the impacts of water chemistry and habitat quality;
- assess time trends in water quality;
- characterize the impacts of regional and local point and nonpoint source discharges on water quality;
- check for compliance with water quality standards or wastewater permit limits and monitor the effectiveness of pollution control activities;
- support development of strategies to return impaired waters to compliance with water quality standards.

The department released an updated version of the Missouri Water Quality Report, also called the 305(b) Report, in FY04. The complete document can be viewed at the following URL: http://www.dnr.mo.gov/env/wpp/waterquality/305b/2004_305b.pdf

Water Quality Standards
Information on Missouri's water quality standards can be found at:
http://www.dnr.mo.gov/env/wpp/wqstandards/index.html

The objective of the Clean Water Act of 1972 along with its amendments are to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The first national set of water quality standards were published in 1983 and codified in 40

CFR Part 131. These regulations allow individual states to construct their own water quality standards framework providing there is no reduction in protection compared to federal guidelines.

Water Quality Standards are to be reviewed and modified every three years. Termed the triennial review process, coordinators with the Missouri Department of Natural Resources meet with the U.S. EPA, other state agencies, and concerned citizens to evaluate the effectiveness of our standards.

Water quality standards provide a means by which attainment of water quality objectives can be measured. The objective is protection of designated uses through the application of narrative or numeric criteria. The level of protection given to a stream, lake, or river is dependent on the expected or "designated use(s)," of that water. Classified waters in Missouri have been assigned the designated uses that are listed in 10 CSR 20-7.031(C). The antidegradation section requires actions to maintain existing uses.

Attainment frequency of water quality standards are used in identifying and characterizing waters of the state for purposes of compiling the 303(d) list and 305(b) report. In addition, effluent limits contained in National Pollution Discharge Elimination System (NPDES) permits are frequently derived using water quality standards.

During the past fiscal year, much has happened in the world of water quality standards. New standards were put into effect on December 30, 2005, after a lengthy process of citizen and stakeholder involvement, commission and staff review, public comment, and rulemaking procedure. The new standards can be found at Secretary of State's Web site: http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-7a.pdf.

V. Agency Partnerships

Partner agencies' impact on NPS pollution is critical to nonpoint source programs. Both technical and financial assistance is available from various other state agencies to address nonpoint source pollution. This section highlights the many significant contributions that some of our other agency partners made in 2006.

A. Natural Resources Conservation Service (NRCS) http://www.nrcs.usda.gov/

NRCS puts nearly 70 years of experience to work assisting America's private landowners with conserving their soil, water, and other natural resources. Local, state and federal agencies and policymakers also rely on their expertise. NRCS delivers technical assistance based on science and is suited to a customer's specific needs. Cost-share and financial incentives are available in some cases. Most work is done with local partners. Participation in NRCS programs is voluntary. Some examples of the work NRCS did in Missouri for 2006 are listed below. In some instances the last available data has been presented.

- Comprehensive Nutrient Management Plans (CNMPs) - In 2006, 160 were planned, 97 applied.
- Conservation Buffers - In 2006, 7,544 acres (This includes contour strips, filter strips, grassed waterways, riparian forest buffers).
- Erosion reduction in 2005 was reported at 287,849 tons.
- Irrigation water management is now Irrigation Efficiency Improved - In 2005, 26,371 acre-feet were reported.
- Nutrient Management - In 2004 (practice 590) 65,819 acres.
- Pest Management - In 2004 (practice 595) 61,267 acres.
- Wetlands Created, Restored, or Enhanced - 10,321 acres in 2004 and 10,325 acres in 2005.

For additional NRCS reporting information select the following link:
http://ias.sc.egov.usda.gov/prsreport2006/

B. Department of Health and Senior Services: http://www.dhss.mo.gov/

The mission of the Department of Health and Senior Services' (DHSS), Bureau of Environmental Regulation and Licensure, and Bureau of Environmental Epidemiology are to protect and promote quality of life and health for all Missouri citizens by developing and implementing programs and systems that provide:

1. Assessment services for environmental health conditions,
2. Public assurance through education, effective regulation and oversight, and surveillance of environment health conditions, and
3. Public health policies that effectively achieve DHSS' mission.

There is particular cooperation and partnership regarding nonpoint issues relating to private drinking water, on-site sewage, and other various wastewater systems.

DHSS' Health Laboratory provides private well testing services for public assurance of environment health. Local county public health agencies and DHSS provide technical advice to private well owners related to drinking water quality.

DHSS' Bureau of Environmental Regulation and Licensure works to educate and license contractors that construct or repair on-site wastewater treatment systems. A listing by county of On-Site Wastewater Treatment Installers may be found at http://www.dhss.mo.gov/Onsite/onsite_map.html. In general, DHSS also works with local county public health agencies on the issuance of onsite sewage permits http://www.dhss.mo.gov/Onsite/PermitProcess.html.

To assure the public of fish consumption safety, DHSS' Bureau of Environmental Epidemiology also assesses fish tissue data obtained from Department of Conservation (MDC) and Department of Natural Resources (DNR) http://www.dhss.mo.gov/NewsAndPublicNotices/07FishAdvisory.pdf. Related to fish consumption safety, DHSS also provides technical support for DNR's Section 303(d) Impaired Waters Listing and TMDL listings. As needed, DHSS also cooperates with

MDC and DNR on fish kills and pollution investigations to protect public health from these events.

C. Missouri Department of Conservation http://mdc.mo.gov/

Strategic goals of the Conservation Commission and the Missouri Department of Conservation (MDC) are to preserve and restore the state's biodiversity; to inform and educate the public about fish, forest and wildlife conservation; to help landowners manage their land for sustainable resources; to develop and maintain public land that invites public use; and to integrate conservation principles and urban lifestyles. Creating effective partnerships, retaining public support, recruiting new participants and improving our business management systems are also important goals. Direct information was not available from MDC on their activities regarding nonpoint source remediation activities for Federal Fiscal Year 2006. However, the Missouri Department of Conservation's 2005 Annual Report provides several nonpoint source related accomplishments http://www.mdc.mo.gov/conmag/2006/01/50.htm.

During FY05, MDC staff responded to 7,243 requests for assisting with ponds, streams, riparian corridor, floodplain and watershed management; conducted 1,556 on-site visits; provided 202 written management plans and assisted with the installation of 66 stream or riparian habitat projects. MDC state nursery provided over 5 million seedlings to 12,500 citizens for forest restoration, wildlife habitat and soil erosion prevention projects

D. Missouri Department of Agriculture http://www.mda.mo.gov

The Missouri Department of Agriculture sets agriculture policy and provides assistance to farmers throughout the state. While the department maintains its regulatory functions, its expanded duties include: consumer protection; public health roles; environmental advocacy; agricultural marketing; public information and awareness; and promoting new technology and new uses for Missouri's agricultural goods. As its primary mission, the department strives to serve, promote, and protect the agricultural producers, processors, and consumers of Missouri's food, fuel, and fiber products.

♦ Pesticide Applicator Training

Section 281.100 and 2 CSR 70-25.050 (2) of the Missouri Pesticide Use Act and Code of State Regulations authorizes the Missouri Department of Agriculture's Bureau of Pesticide Control to establish minimum criteria for re-certifying Missouri certified Commercial and Noncommercial Pesticide Applicators and Public Operators. Each re-certification training course must be approved in advance by the Bureau of Pesticide Control. http://www.mda.mo.gov/Pest/bureauintro.htm

Since the inception of the pesticide training program, some 6,000 commercial and 40,000 private pesticide applicators have received at least initial training. In addition to initial training, these applicators must be re-certified by training programs conducted by University Extension or other entities as approved by the Missouri Department of Agriculture's Bureau of Pesticide Control.

♦ Dead Animal Reporting

The Animal Health Division responds to reports of dead livestock that have not been properly disposed. Division staff do not dispose of the animals, but do attempt to locate those responsible and see that they properly dispose of the carcasses in a timely manner as required by the Disposal of Dead Animal Law, Chapter 269, RSMo. http://www.moga.state.mo.us/STATUTES/C269.HTM. The division only investigates animals raised for commercial purposes and does not respond to reports of dead animals under the Wildlife Code (deer, coyotes, etc.), or pets, whether confined or stray.

E. U.S. Geological Survey (USGS) http://mo.water.usgs.gov/district_info/index.htm

The U.S. Geological Survey is the Nation's largest earth-science agency and has the principal responsibility within the Federal government for providing hydrologic information and for appraising the Nation's water resources. The water resources of Missouri consist of numerous streams, springs, lakes, and aquifer systems. In 2005, stream flow is measured at about 174 surface-water gaging stations, elevation at 12 lakes and reservoirs, water quality is sampled at 108 sampling stations (including 2 lakes), data are collected at 39 crest-stage stations, 6 water-quality partial-record stations, water-level records for 8 ground-water monitoring wells, and water-use data are collected throughout the area. These hydrologic data and other data are used in research and hydrologic studies to describe the quantity, quality, and location of Missouri's water resources. The collection, analysis, and interpretation of these data is done in cooperation with other Federal, State and local agencies, universities, and research centers. Missouri water resources data for 2006 will be available from USGS later this year.

VI. Teams, Committees, and Volunteers

A. Missouri Water Quality Coordinating Committee

The Water Quality Coordinating Committee (WQCC) is an informal interagency and public committee dealing with water quality issues. Representatives from non-profit organizations, universities and colleges, cities and businesses, as well as state, federal and local agencies, regularly attend WQCC meetings. It is informal in that the committee has no statutory or regulatory foundation. It exists through and for the participants. Each agency or group brings issues, information or requests to the committee that are related to water quality, and each continues to exercise its statutory responsibilities.

The department originally convened the WQCC to deal with animal waste issues, specifically, poultry in southwest Missouri. The committee's activities continue to be organized through the department's Water Protection Program. As a forum for discussion among agencies on that issue, it was readily apparent that the information exchange and coordination opportunities afforded by the committee were valuable far beyond that original issue, and the committee's scope expanded. A sampling of issues brought before the committee include ground water protection, the Missouri River Master Manual, water quality data collection and management, nonpoint source issues, water quality standards, flood response activities, pesticides, septic tanks, environmental

education, sand and gravel mining, drinking water protection, and potential funding opportunities. The committee meetings are open to the public and have given the public an opportunity to address the agencies on specific water quality concerns. Speakers have included members from the Watershed Committee of the Ozarks, Missouri River Communities Network, Novartis, Monsanto, and the Scenic Riverways Watershed Partnerships, among others. The Committee may also assist in the coordination and implementation of watershed protection strategies.

During this annual reporting period, seven meetings were held. Future meeting information and minutes from previous meetings can be found on the department's web site at http://www.dnr.mo.gov/env/wpp/wqcc/index.html.

B. Clean Water Forum

The Clean Water Forum was initiated in May 2005 as a means to involve a variety of individuals in water quality policy discussions. A wide diversity of interests are represented, including agriculture, municipalities, industry, environmental groups, consultants, environmental attorneys, and others. The department must always consider how policy issues affect regulated entities and the public and this is a means to solicit input from those affected interests.

Due to the many complex issues presented at the main Water Quality Forum meetings, the group decided to form several advisory groups to help work on selected issues. These subcommittees include:

- 303(d) List/Water Quality Monitoring Issues,
- Antidegradation Implementation Procedures,
- Continuing Authorities,
- Federal Safe Drinking Water Rules/Design Guide,
- Funding/Staff/Resources,
- Small Flows (<22,500 gal/day) Effluent Limits/Lagoon Pesticides Policy,
- State Revolving Fund (SRF) Priority Points/Process,
- Unclassified Streams/Wetland Classification/Tiered Aquatic Life,
- Water Quality Effluent Limits/Effluent Dominated Streams/Waivers to Disinfect,
- Nutrient Criteria Development Stakeholder Workgroup, and
- Missouri Nonpoint Source Management Plan Revisions Stakeholder Meetings.

During this annual reporting period, two meetings of the entire forum were held along with approximately 37 subcommittee meetings. Future meeting information and minutes from previous meetings can be found on the department's web site at http://www.dnr.mo.gov/env/wpp/cwforum/index.html.

C. Water Resources Center

Information on DNR's Water Resources Center can be found at: http://www.dnr.mo.gov/env/wrc/index.html.

The Mission of the Missouri Water Resources Center is to administer the development, conservation and use of the state's water resources. The Center's primary role is to provide technical advice and assistance on water use, comprehensive water supply and use planning, ground water, and surface water hydrology.

Collection, maintenance and interpretation of water resources information is imperative in order for Missouri to respond to environmental and economic problems related to water. Types of issues requiring this kind of information include: interstate water availability and usage, public water well locations, water quality and quantity determinations, drought and flood response and planning, coordination and resolution of river basin issues, major water users data collection, groundwater and surface water contamination potential and prevention, and water use decisions.

One can find links to a magnitude of information, both for general knowledge and potentially helpful for watershed planning. These links include drought information, dam and reservoir safety, interstate waters, State Water Plan, groundwater, springs and caves, major water users, surface water, wetlands, publications, forms, frequently asked questions, a staff directory and links to other water related sites.

D. Missouri Stream Teams/Volunteer Water Quality Monitoring Program

Missouri Stream Team and Volunteer Water Quality Monitoring information can be found at the following Web site: http://www.mostreamteam.org/.

Summary of Stream Team-related activities, including Volunteer Water Quality Monitoring (VWQM) (Information based on 2006 Calendar Year)

The State of Missouri is rich in water resources, with over 110,000 miles of free flowing streams. The waterways of Missouri are beneficial to all living inhabitants of the state, and indirectly beneficial to the nation as a whole. Missouri Stream Team is a network of citizens who are concerned about Missouri streams. It provides an opportunity to become involved in stream conservation by offering free membership to any interested citizen, family or organization. Stream Teams often adopt a backyard stream, although doing so is not a requirement. Missouri Stream Teams strive to assist in the proper management of these waterways. The Missouri Stream Team program organizes concerned citizens to address stream problems at the local level. Collectively, Stream Team members learn to monitor water quality on a geographic scale far beyond what government agencies can do. They also work to plant trees, stabilize stream banks, and improve fish and wildlife habitats in or near streams. Homeowners, students, landowners, and businesses are a few examples of the cross section of society that Stream Teams hope to continue to enlist in their efforts to conserve Missouri's greatest natural assets. Each Stream Team attempts

to bring together public and private resources to reach the goals of the program. The objectives of Missouri Stream Teams are:

1. To organize concerned citizens to address stream problems that result from pollution, alteration, and general neglect.
2. To address the issues involving stream alteration and pollution on a local basis by involving members of the community and educating them on the importance of water quality, and conservation of natural resources.
3. To draw together public and private resources to implement solutions across jurisdictional lines.
4. To help communities appreciate streams as positive assets through education and group involvement in the program.

Training Levels

The Voluntary Water Quality Monitoring (VWQM) Program currently has 5 levels of training. The classes are chronological, meaning each one is a prerequisite for the next, as is submission of appropriate data as listed below. Classes are only offered at specific times of the year, at various training sites around the state.

- Introductory: This is the entry level of monitoring that includes watershed mapping, visual surveys, and biological monitoring. The primary emphasis is education about watersheds. These classes are usually offered in the spring and early summer each year.
- Level 1: Volunteers who have attended the Introductory workshop and submitted site information and biological data are eligible to attend a Level 1 workshop. This level of monitoring focuses on chemical and physical monitoring (e.g., measuring flow), although biological monitoring is reviewed. A quality control designation of Level 1 indicates that the volunteer has completed the 8-hour Level 1 Workshop. These classes are offered in the fall of each year.
- Level 2: Volunteers who have attended the Level 1 workshop and have submitted water chemistry and flow data are eligible to attend a Level 2 workshop. Data assigned the quality control designation of Level 2 indicates a volunteer has successfully completed the Level 2 Quality Assurance/Quality Control Workshop, where they correctly identified 75% of the macroinvertebrates covered in the workshop to Order and established accuracy limits on 4 out of 5 chemical parameters. Attending a Level 2 allows the volunteer to check chemical monitoring equipment to ensure it is functioning properly, as well as to improve chemical monitoring techniques. This workshop may also improve the volunteer's ability to correctly identify macroinvertebrates since instructors will assist in identifying unknown invertebrates that volunteers bring to the class from their streams. Volunteers can also get assistance confirming identification of invertebrates in their reference collections. Level 2 classes are offered during the winter of each year.
- Level 3: The designation of Level 3 indicates that program personnel have evaluated the volunteer in the field at their monitoring site - it is more an audit than a workshop. A volunteer is eligible for a Level 3 audit if they have successfully completed the Level 2 Workshop. Participants must meet accuracy limits on five out of five

chemical parameters and correctly identify all invertebrates at their site to Order to be elevated to Level 3. This evaluation is scheduled through appointment only.

- Cooperative Site Investigation (CSI): CSI volunteers participating in specific projects will be required to successfully complete all VWQM courses through Level 2. They must have demonstrated a commitment to monitoring and submitting data on a timely basis before becoming a CSI. Volunteers shall attend a one-day training class conducted in a classroom setting along with a field exercise to learn proper collection, preservation, tag and transportation of water samples (including Chain-of-Custody procedures) for analysis by the Department of Natural Resources' State Environmental Laboratory. Training will be conducted statewide on a case-by-case basis, the need for which will be determined by the Department of Natural Resources. Parameters may include *E. coli*, nitrate, ammonia, phosphorus, settleable solids, lead, and/or others as needed.

Stream Team Monitoring/Assessment Activities

- Number of Stream Teams formed in calendar year 2006 was 329.
  - Number of volunteers attending the Missouri Stream Team Program's VWQM workshops in calendar year 2006 was 559 attendees at 27 workshops. Note: Individuals can and do attend more than one workshop in a year. Therefore, the number of citizens trained without counting them twice or three times would be slightly less than the count provided. The individual workshops/audits have the following values:
    - Eighteen "Introduction to VWQM" workshops attended by 360 citizens.
    - Five Level 1 workshops attended by 174 individuals.
    - Four Level 2 workshops attended by 25 participants.
    - Level 3 "audits" and CSI training did not take place in FY06.
- Amount of data submitted to the Stream Team Program: See individual watershed (8-digit hydrologic unit code) descriptions.
- Number of newsletters developed by Stream Team staff:
  - Calendar Year 2006 = Seven total issues (47,100 total newsletters distributed).
    - Six issues of *Channels* by MDC with a distribution of 45,500, and
    - One *Monitoring News & Notes* by DNR with a distribution of approximately 1,600.
  - Missouri Department of Conservation's *Channels* newsletters can be found at <http://www.mostreamteam.org/channels.asp>.
- Stream Team Activities:

Figure 184: Stream Team Activities During Federal Fiscal Year 2006

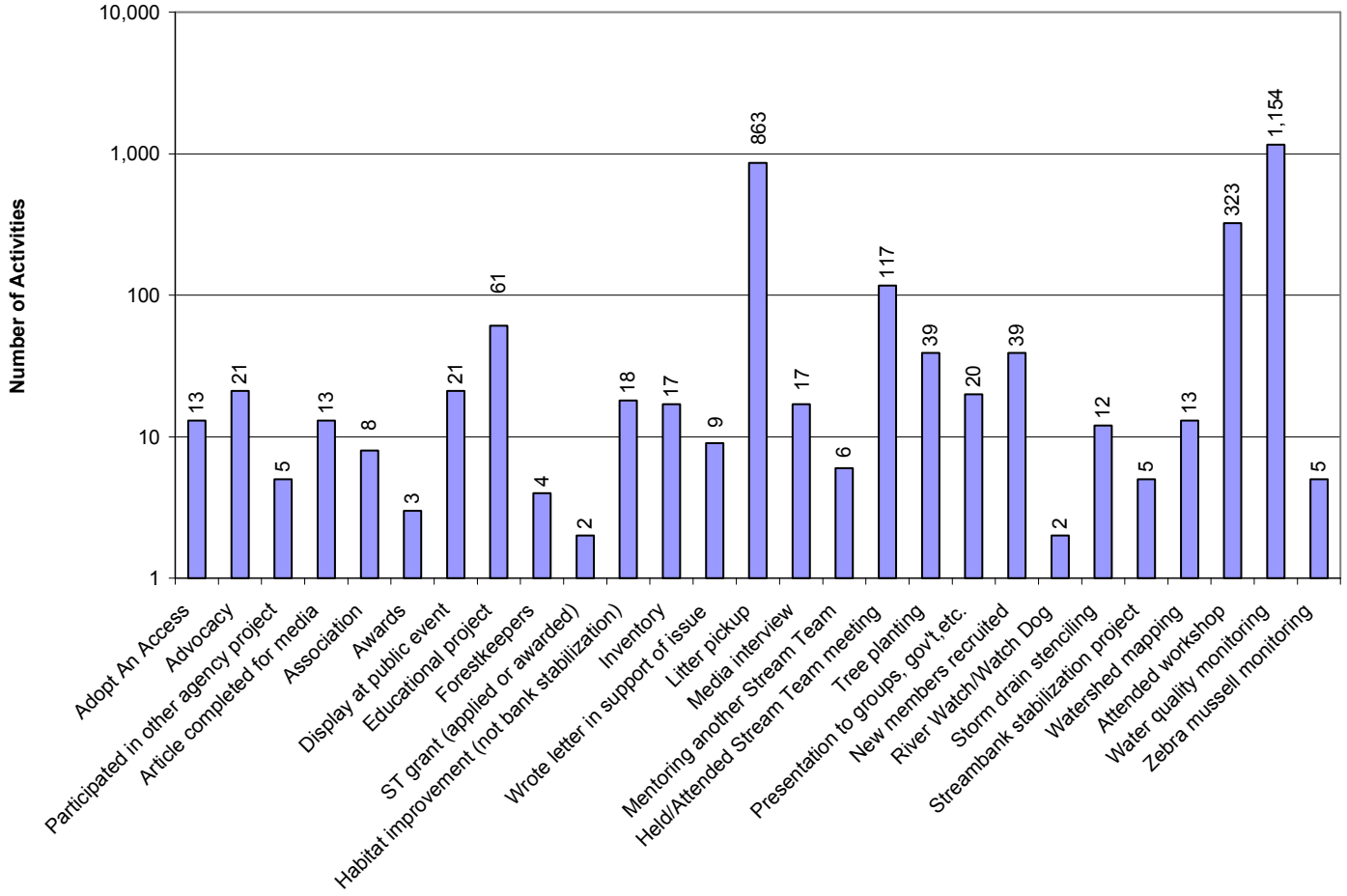


Figure 185: Stream Team Activities During Federal Fiscal Year 2006: Table.

Activity	Reported in FFY2006	Unit
Adopt An Access	13	agreements
Advocacy	21	hours
Participated in other agency project	5	events
Article completed for media	13	articles
Association	8	hours
Awards	3	awards
Display at public event	21	events
Educational project	61	events
Fish stocking	0	events
Forestkeepers	4	trips
Greenways	0	projects
ST grant (applied or awarded)	2	projects
Habitat improvement (not bank stabilization)	18	projects
Inventory	17	sites

Wrote letter in support of issue	9 letters
Litter pickup	863 tons
Media interview	17 interviews
Mentoring another Stream Team	6 hours
Held/Attended Stream Team meeting	117 attendees
Other	0 events
Tree planting	39 trees
Presentation to groups, gov't,etc.	20 presentations
New members recruited	39 people
River Watch/Watch Dog	2 hours
Storm drain stenciling	12 drains
Streambank stabilization project	5 event
Watershed mapping	13 trip
Attended workshop	323 attendees
Water quality monitoring	1,154 sites
Zebra mussell monitoring	5 trips
TOTAL	2,810

- Additional Information can be found in the Missouri Stream Team Annual Reports: http://www.mostreamteam.org/annualreport.asp

VII. Conclusion: Future Efforts

The Missouri Department of Natural Resources and their resource partners will continue a watershed approach to address nonpoint pollution according to the guidance of Missouri's Nonpoint Source Management Plan. The department anticipates continued success in the use of funding sources to improve water quality, while concurrently improving upon reporting and evaluation measures as specified in the Nonpoint Source Management Plan.

Questions regarding this report or other nonpoint source management issues in the State of Missouri should be directed to Greg Anderson, Chief, Nonpoint Source Unit, Missouri Department of Natural Resources, Water Protection Program, P. O. Box 176, Jefferson City, MO 65102, by phone at (573) 751-7144, or by email at greg.anderson@dnr.mo.gov.

VIII. Appendices

A. Water Data Available through the United States Geological Survey (USGS)
B. Watershed Information Network
    1. Know Your Watershed
    2. Surf Your Watershed
    3. Science In Your Watershed
C. Reference and Useful Web Links
D. Acronyms

Appendix A.

Water Data Available through the United States Geological Survey (USGS)

About USGS Water Data (http://nwis.waterdata.usgs.gov/mo/nwis/about) – excerpt follows.

The United States Geological Survey (USGS) has collected water resources data at approximately 1.5 million sites across the United States, Puerto Rico, and Guam. The types of data collected are varied, but generally fit into the broad categories of surface water and ground water. Surface water data, such as gage height (stage) and streamflow (discharge), are collected at major rivers, lakes, and reservoirs. Ground water data, such as water level, are collected at wells and springs.

Water-quality data are available for both surface water and ground water. Examples of water-quality data collected are temperature, specific conductance, pH, nutrients, pesticides, and volatile organic compounds. The National Water Information System Web (NWISWeb) maintained by the USGS contains current and historical data. Data are retrieved by category of data, such as surface water, ground water, or water quality, and by geographic area.

Not all water-resources data collected by the USGS are provided on the NWISWeb site. To inquire about the availability of additional hydrologic data, as well as other USGS information such as reports, visit the USGS Water Resources Home Page at http://water.usgs.gov.

How to Access Current and Historical Water Data (NWISWeb)

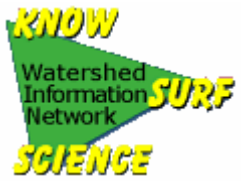
1. From USGS' main Web page (http://www.usgs.gov), find the "Water" link (http://water.usgs.gov)
2. From the Water Resource of the United States Web page, find the link entitled "NWISWeb Water Data" (http://waterdata.usgs.gov/mo/nwis/nwis).
3. On the NWISWeb Data for the Nation page, select "Missouri" under the drop down menu for "Geographical Area:" in the upper right hand corner of the Web page (http://waterdata.usgs.gov/mo/nwis/nwis).
4. Depending on the type of data you would like to review, five categories exist:
   - Real-time (current-conditions data transmitted from selected surface-water, ground-water, and water-quality sites).
   - Site Information (descriptive site information for all sites with links to all available water data for individual sites).
   - Surface Water (water flow and levels in streams, lakes, and springs).
   - Ground Water (water level in wells).
   - Water Quality (chemical and physical data for streams, lakes, springs, and wells).
5. For the purpose of introducing individuals to the amount of information available from this Web site, we will proceed with the Site Information category (http://waterdata.usgs.gov/mo/nwis/si).
6. On the Site Information for Missouri Web page, click on the link to "Site Information" (http://waterdata.usgs.gov/mo/nwis/inventory).

7. The Site Inventory for Missouri Web site has many criteria by which one can search for information, including county, hydrologic unit, and site name. As part of this exercise we will choose the "Hydrologic unit" box only and then click on "Submit" (http://waterdata.usgs.gov/mo/nwis/inventory?search_criteria=huc_cd&submitted_form=introduction).
8. Under Select Sites, choose the eight-digit hydrologic unit code (HUC 8) that you wish to gather information on.
   - If you do not know which HUC 8 you need, see the instructions for navigating the Web page "Science in Your Watershed" or "Surf Your Watershed".
9. Under Chose Output Format, the primary format is a table of the sites sorted by site number, which should already be selected. However, if you wish to display the information in a different format, choose the option most appropriate for your purposes.
10. Click "Submit". After you have done so, the data may take a while to display, particularly if you have a slower connection. A page should be displayed noting if there is too much information to retrieve, and you will need to select a more specific query.
11. Displayed before you should be a table with links to specific sites with a brief description of the sites.
12. If you wish to view specific water information for a site, simply click on the site number link. The site data will be displayed under "Available Data" with links to the different types for this site. In addition to the available water data, the site location, site type, drainage area, and other information can be obtained from the site's Web page. A dropdown menu at the top of the page also contains a link to EPA's "Surf Your Watershed" Web page, which has maps and additional information on the watershed.

Appendix B.

Watershed Information Network

The Watershed Information Network symbol on the right identifies three Web sites cooperating to provide watershed information:



- Know Your Watershed (http://www.ctic.purdue.edu/KYW/KYW.html) is maintained by the Conservation Technology Information Center. It focuses on a registry of watershed partnerships working to meet local goals.
- Surf Your Watershed (http://www.epa.gov/surf/) is maintained by the U.S. Environmental Protection Agency. It provides a service to help you locate, use, and share environmental information about your place.
- Science in Your Watershed (http://water.usgs.gov/wsc/) is maintained by the U.S. Geological Survey. Its focus is on bringing you scientific information such as streamflow organized by watershed.

Though each site is responsible for its own content, they are linked together through the unique Hydrologic Unit Code (http://water.usgs.gov/GIS/huc.html) for each watershed.

A clickable map to locate your watershed (http://water.usgs.gov/wsc/map_index.html) is available.

Appendix B.1.

"Know Your Watershed"

Maintained by the Conservation Technology Information Center (CTIC)

About "Know Your Watershed" (http://www.ctic.purdue.edu/KYW/KYW.html)

It is a coordinated national effort to encourage the formation of local, voluntary watershed partnerships and help assure that these partnerships successfully attain their goals.

The initiative is sponsored by more than 70 diverse national partners representing private and public corporations, government agencies, and non-profit organizations. Each national partner agrees to provide financial and/or in-kind support.

The national effort is coordinated by the CTIC, a non-profit data and technology information transfer center. In addition to coordinating the National Watershed Network, National Watershed Calendar, and many other on-going tools for watershed coordinators, the effort also...

- Stimulates multiplication of consistent messages among all national partners to state and local leaders of organizations, government agencies and companies.
- Serves as a conduit between national partners who have useful tools and coordinators of local watershed partnerships.
- Shares state activities and successes with state-level stakeholders in other states and regions.
- Facilitates and/or encourages broad-based state-level partnerships that encourage and provide support to local watershed partnerships.
- Encourages use and sharing of processes and methods that have been found to work successfully for watershed coordinators.

National Watershed Network (http://www.ctic.purdue.edu/KYW/nwn/nwn.html)

The National Watershed Network is a registry of locally led watershed partnerships working to meet local goals through voluntary actions.

- Search the registry by providing your state, county or watershed name to find active watershed partnerships in your watershed (http://www.ctic.purdue.edu/KYW/NWN/WatershedForm1.html).
- Point and click by using the interactive map (http://www.ctic.purdue.edu/KYW/NWN/US_Watersheds_8digit.html). Or,
- Identify an organization who has already faced a similar issue by using the issue/concern search (http://www.ctic.purdue.edu/KYW/NWN/WatershedForm2.html).

You can also register your watershed partnership with the National Watershed Network (http://www.ctic.purdue.edu/KYW/NWN/WatershedApplication.html).

- When you register with the National Watershed Network, you are registering with an exclusive network of watershed partnerships. Partnerships listed on the Network actively work to make their watershed healthier. They welcome all stakeholders and encourage everyone with a stake to get involved in the search for assessing the watershed, setting goals and developing strategic solutions that can be locally implemented on a voluntary basis.

- To register, simply fill out the form at http://www.ctic.purdue.edu/KYW/NWN/WatershedApplication.html. Call (765) 494-9555. You will be contacted annually to update the information.
- When you register, you benefit in four ways:
  1. New watershed partnerships use the Network to find a mentor. This 'sister' partnership can help guide them through the process, answer questions, or lend an ear for use as a sounding board.
  2. Nearly 100 national partners rely on the annual survey the Network conducts. The partners rely on feedback to develop new technologies, programs, and resources. Many local partnerships have also worked directly with individual national partners to obtain assistance with monitoring activities, demonstrating management practices, conducting training sessions, and much, much more.
  3. Partnership information is on the web. Viewers learn details about what your group is doing.
  4. Receive a free subscription to *Watershed Leader*, the newsletter published for watershed groups. It carries the latest in ideas, programs, resources, events, and other news of interest to watershed coordinators.

Appendix B.2.

"Surf Your Watershed"

Maintained by the United States Environmental Protection Agency (USEPA)

About "Surf Your Watershed" (http://www.epa.gov/surf/)

Surf Your Watershed contains the following databases.

- Adopt Your Watershed,
- Environmental Web sites, and
- Locate Your Watershed.

Adopt Your Watershed

Information can be added to any of these databases using the Add Information button found at the top of Surf Your Watershed pages. Additional information can also be found at this link.

- Adopt Your Watershed (http://www.epa.gov/adopt/) - This is a voluntary, national catelog of organizations involved in protecting local water bodies, including formal watershed alliances, local groups, and schools that conduct activities such as volunteer monitoring, cleanups, and restoration projects. You can search for a group in your area either by state, zip code, group name, keywords, or even stream name. As of December 2006 over 4000 groups are indexed. Wetlands Restoration Projects (http://www.epa.gov/owow/wetlands/restore/) - View ongoing wetlands projects, add information about your own project or update previous information about your project. Organized by state and watershed. (Restoration Project Directory can be found at http://yosemite1.epa.gov/water/restorat.nsf/rpd-2a.htm?OpenPage)
- American Heritage Rivers (http://www.epa.gov/rivers/) - A multi-agency initiative to help communities find support for their rivers. The database offers a "yellow pages" directory of services to help communities revitalize their rivers environmentally, economically, and culturally.

Environmental Web sites

A directory of Web sites dedicated to environmental issues and information can be found at http://www.epa.gov/watershed/envsites/. Search this SURF database using keywords, geography, organization, or even by the information medium you desire. You can locate your place and find relevant information.

Locate Your Watershed

Watersheds are those land areas that catch precipitation and drain to specific marshes, streams, rivers, lakes, or to ground water. Choose from the options below to locate your watershed.

- Search by map – Use a clickable map to locate your watershed.
- Find a place – Search all the geographic navigation tables in Surf Your Watershed by your city, river, county, state, watershed, zip code, 8-digit hydrologic unit code, or other information.
- Places - Use USGS' Geographic Names Information System to locate your watershed by querying on lakes, airports, rivers, parks, schools, and more.

Appendix B.3.

"Science in Your Watershed"

Maintained by the United States Geological Survey (USGS)

About "Science In Your Watershed" (http://water.usgs.gov/wsc/)

The purpose of this site is to help you find scientific information organized on a watershed basis. This information, coupled with observations and measurements made by watershed groups, provides a powerful foundation for characterizing, assessing, analyzing, and maintaining the status and health of a watershed.

A watershed is defined as the divide separating one drainage basin from another and in the past has been generally used to convey this meaning. However, over the years, use of the term to signify drainage basin or catchment area has come to predominate, although drainage basin is preferred. Drainage divide, or just divide, is used to denote the boundary between one drainage area and another.

Discussions with watershed groups across the country resulted in this Web site. This Web site provides access to:

- Locate Your Watershed (http://water.usgs.gov/wsc/map_index.html) - use the mapping interface to locate your watershed and link to additional information from your watershed.
- Information Discovery (http://water.usgs.gov/wsc/information.html) - find projects, publications, and databases related to your watershed.
- Data Integration (http://water.usgs.gov/wsc/dataintegration.html) - learn more about how you can use scientific data to understand your watershed.

The Web site provides a decision-support process by making accessible recent case studies of projects that have occurred, publications produced, databases and information assembled, and providing access to free and nearly free software tools for manipulating spatial information.

Appendix C.

References and Useful Web Links

Center for Agricultural, Resource, and Environmental Systems (CARES)
http://cares.missouri.edu/index.asp

Missouri Department of Conservation http://mdc.mo.gov
- Missouri's Watersheds http://mdc.mo.gov/fish/watershed

Missouri Department of Natural Resources http://www.dnr.mo.gov
- Water Protection Map Gallery http://www.dnr.mo.gov/env/wpp/wpp-map-gallery.htm
  - 303(d) List of Impaired Waters http://www.dnr.mo.gov/env/wpp/waterquality/303d/index.html
  - What watershed do you live in? http://www.dnr.mo.gov/env/wpp/watersheds/index.htm
  - Watershed Information Sheets http://www.dnr.mo.gov/env/wpp/watersheds/info/index.html
  - 319 Nonpoint Source Projects http://www.dnr.mo.gov/env/wpp/nps/319nps-statewide-map.htm
  - Missouri Water Quality Report http://www.dnr.mo.gov/env/wpp/waterquality/305b/index.html
- 319 Nonpoint Source Implementation Program http://www.dnr.mo.gov/env/wpp/nps/index.html

Missouri Watershed Information Network http://www.mowin.org

Appendix D.

Acronyms

AgNPS	Agricultural Nonpoint Source
BMP	Best Management Practice
BOD5	5-day Biochemical Oxygen Demand
CARES	Center for Agricultural, Resource, and Environmental Systems
CNMP	Comprehensive Nutrient Management Plan
CWA	Clean Water Act
CWC	Missouri Clean Water Commission
DHSS	Missouri Department of Health and Senior Services
DNR	Missouri Department of Natural Resources
EPA	United States Environmental Protection Agency
HUC	Hydrologic Unit Code
LRP	DNR, Land Reclamation Program
MDA	Missouri Department of Agriculture
MDC	Missouri Department of Conservation
MoWIN	Missouri Watershed Information Network
NID	Neighborhood Improvement District
NPS	Nonpoint Source
NPSMP	Nonpoint Source Management Plan
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
OAC	DNR, Outreach and Assistance Center
PAM	Program Activity Measure
PIL	Permit-in-Lieu of TMDL
PWSSID	Public Water Supply System ID
QAPP	Quality Assurance Project Plan
QAQC	Quality Assurance/Quality Control
RFP	Request For Proposal
RUSLE	Revised Universal Soil Loss Equation
SALT	Special Area Land Treatment
SDWA	Safe Drinking Water Act
SRF	State Revolving Fund
STEPL	Spreadsheet Tool for Estimating Pollutant Load
SWAP	Source Water Assessment Plan
SWPP	Source Water Protection Plan
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USLE	Universal Soil Loss Equation
UST	Underground Storage Tank
VB	Visual Basic
VWQM	Volunteer Water Quality Monitoring
WPP	DNR, Water Protection Program
WQCC	Water Quality Coordinating Committee
WQS	Water Quality Standards
WRAS	Watershed Restoration Action Strategy